American eel abundance indicators in Canada

D.K. Cairns, V. Tremblay, F. Caron, J.M. Casselman, G. Verreault, B.M. Jessop, Y. de Lafontaine, R.G. Bradford, R. Verdon, P. Dumont, Y. Mailhot, J. Zhu, A. Mathers, K. Oliveira, K. Benhalima, J.P. Dietrich, J.A. Hallett, and M. Lagacé

Oceans and Science Branch
Fisheries and Oceans Canada
343 Université Avenue
P.O. Box 5030
Moncton, NB,
E1C 9B6

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by

D.K. Cairns[1], V. Tremblay[2], F. Caron[3], J.M. Casselman[4], G. Verreault[5], B.M. Jessop[6], Y. de Lafontaine[7], R.G. Bradford[8], R. Verdon[9], P. Dumont[10], Y. Mailhot[11], J. Zhu[12], A. Mathers[13], K. Oliveira[14], K. Benhalima[15], J.P. Dietrich[16], J.A. Hallett[17], and M. Lagacé[18]

Oceans and Science Branch
Fisheries and Oceans Canada
343 Université Avenue
P.O. Box 5030
Moncton, NB E1C 9B6

---

[1]Fisheries and Oceans Canada, Box 1236, Charlottetown, PE C1A 7M8 cairnsd@dfo-mpo.gc.ca

[2]Alliance-Environnement, 2 rue Fusey, Trois-Rivières, QC G8T 2T1 tremblay.v@alliance-environnement.qc.ca

[3]Ministère des ressources naturelles et de la faune, 3950 boul. harvey, Jonquière, QC G7X 8L6 francois.caron2@mrnf.gouv.qc.ca

[4]Biology Dept., Queens University, Kingston, ON K7L 3N6 casselmj@biology.queensu.ca

[5]Ministère des ressources naturelles et de la faune, CP 445, Rivière-du-Loup, QC G5R 3C4 guy.verreault@mrnf.gouv.qc.ca

[6]Fisheries and Oceans Canada, Box 1006, Halifax, NS B2Y 4A2 jessopb@mar.dfo-mpo.gc.ca

[7]Centre Saint-Laurent, Environnement Canada, 105 McGill, Montréal, QC H2Y 2E7 yves.delafontaine@ec.gc.ca

[8]Fisheries and Oceans Canada, Box 1006, Halifax, NS B2Y 4A2 bradfordr@mar.dfo-mpo.gc.ca

[9]Hydro-Québec, 75 René-Levesque Ouest, Montreal, QC H2Z 1A4 verdon.richard@hydro.qc.ca

[10]Ministère des ressources naturelles et de la faune, 201 place Charles-Le Moyne, Longueuil, QC J4K 2T5 pierre.dumont2@mrnf.gouv.qc.ca

[11]Ministère des ressources naturelles et de la faune, 5575 Boul. St-Joseph, Trois-Rivières-Ouest, QC G8Z 4L7 yves.mailhot@mrnf.gouv.qc.ca

[12]Ontario Ministry of Natural Resources, 320 Milo Road, Wheatley ON N0P 2P0 jeffrey.zhu@ontario.ca

[13]Ministry of Natural Resources, RR4, Picton, ON K0K 2T0 alastair.mathers@mnr.gov.on.ca

[14]Biology Dept., University of Massachusetts, Dartmouth, MA 02747 USA koliveira@umassd.edu

[15]Fisheries and Oceans Canada, Box 5030, Moncton, NB E1C 9B6 benhalimak@dfo-mpo.gc.ca

[16]AMEC Earth & Environmental, 405 Maple Grove Road, Unit 6, Cambridge, ON N3E 1B6 jason.dietrich@amec.com

[17]Biology Dept., University of New Brunswick, Fredericton, NB E3B 6E1 jason.hallett@unb.ca

[18]Aquarium de Québec, 1675, avenue des Hôtels, Québec, QC G1W 4S3

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ABSTRACT

This report compiles data that are linked to abundance and abundance trends of American eels (*Anguilla rostrata*) in Canada. Eels were historically present in all coastal and accessible inland waters of eastern Canada up to the mid-Labrador coast. Eels are or have been fished commercially in much of the St. Lawrence River system and tidal waters of the southern Gulf of St. Lawrence. Elsewhere in eastern Canada eels are fished only in a minority of the habitat they occupy. Reported data series include landings, landed values, catch per unit effort from commercial and research fisheries, movement counts from an eel ladder, fish fences, fishway traps, and rotary screw traps, elver series from ramp and habitat traps, estimated densities from electrofishing, capture-mark-recapture and glass bottom boat surveys, and age frequency distributions. Data coverage is best in the St. Lawrence River system and poorest in Newfoundland. The St. Lawrence River and the southern Gulf of St. Lawrence have long-term yellow eel abundance indices, but only the St. Lawrence River has long-term silver eel indices. All areas have at least some age structure data.

RÉSUMÉ

Ce rapport compile des données qui sont liées à l'abondance et aux tendances en abondance de l'anguille d'Amérique (*Anguilla rostrata*) au Canada. L'anguille était historiquement présente dans toutes les eaux côtières et les eaux accessibles de l'intérieur de l'est du Canada jusqu'à la côte moyenne du Labrador. Les anguilles sont ou ont été pêchées dans une grande partie du fleuve Saint-Laurent et dans les eaux tidales du sud du Golfe du Saint-Laurent. Ailleurs dans l'est du Canada l'anguille est pêchée seulement dans une minorité de l'habitat qu'elle occupe. Les séries présentées incluent des débarquements, des valeurs des débarquements, des prises par unité d'effort des pêches commerciales et de la recherche, des décomptes de mouvement par une passe-échelle, par des clôtures à poisson, et par des trappes rotatives, des séries de civelles des trappes à rampe et à l'habitat, des densités estimées par la pêche électrique, la capture-marquage-recapture et des relevés d'un bateau muni d'un fond de vitrine, et des distributions des fréquences d'âge. La couverture des données est la plus forte dans le système du fleuve Saint-Laurent et la plus faible à Terre-Neuve. Le système du fleuve Saint-Laurent et le sud du Golfe du Saint-Laurent ont des indices d'abondance à long terme pour anguilles jaunes, mais seulement le fleuve Saint-Laurent a des indices à long terme pour les anguilles argentées. Toutes les régions ont au moins quelques données sur la structure d'âge.

INTRODUCTION

The American eel is the West Atlantic representative of the worldwide genus *Anguilla*, whose members spawn in ocean waters, migrate to coastal and inland continental waters to grow, and then return to ocean spawning sites to reproduce and die. Several *Anguilla* species have shown sharp population declines, spurring international conservation concerns (Dekker et al. 2003, Tatsukawa 2003).

Concerns have also been raised about American eel (*A. rostrata*) populations. The collapse of the formerly large eel population of Lake Ontario, and decreasing indicators elsewhere, have been taken as evidence of a species-wide decline (Haro et al. 2000, Richkus and Whalen 2000, Casselman 2003). Overfishing, obstacles to migration, turbine mortality in hydro dams, pollution, habitat degradation, and ocean changes have been proposed as reasons for the population changes, but no clear cause has been identified (Castonguay et al. 1994a,b; COSEWIC 2006).

This paper assembles time series which are linked to abundance or abundance trends of American eels in Canada. Eels are managed provincially in Ontario and Quebec and federally in the Atlantic Provinces. Data are derived primarily from the Ontario Ministry of Natural Resources (OMNR) and the Quebec Ministère des ressources naturelles et de la faune (MNRF), and from the Department of Fisheries and Oceans (DFO) in the Atlantic Provinces. In the Maritime Provinces, waters draining into the Gulf of St. Lawrence are under the jurisdiction of DFO Gulf Region, and waters draining into the Bay of Fundy and the Atlantic Ocean are under the jurisdiction of DFO Maritimes Region. In this paper the part of the Maritime Provinces which drain into the Bay of Fundy and the Atlantic Ocean is termed the Scotia-Fundy area.

This compilation is not exhaustive. At least two major groups of data are not treated; these are distribution and catch rates of American eels in Newfoundland as reported by Vladykov (1970), Fletcher and Anderson (1973), Brennan (1976), and Mullins (1980), and eel landings from the 19th century as compiled in Sessional Papers of the Parliament of Canada and of colonial legislatures.

CANADIAN RANGE

The historic Canadian range of the American eel encompasses all accessible fresh water, estuaries and coastal marine waters connected to the Atlantic Ocean, up to Hamilton Inlet - Lake Melville on the mid-Labrador coast (Scott and Crossman 1973, COSEWIC 2006) (Fig. 1). Continental shelves are used by juvenile eels arriving from the spawning grounds, and by silver eels returning to the spawning grounds. The presence of eels in electrofishing surveys in the English River, near Postville, Labrador (D. Reddin, DFO, pers. comm.) indicates that the species sometimes strays north of Hamilton Inlet-Lake Melville. Postville is about 100 km north of Hamilton Inlet. Niagara Falls is the natural limit of the American eel's distribution in the Great Lakes. Occurrences reported in the upper Great Lakes watersheds (Lakes Erie, Huron and Superior) are the result of recent dispersal through the Erie and Welland Canals (Scott and Crossman 1973).

American eels are or have been fished commercially in much of the St. Lawrence River system and tidal waters of the southern Gulf of St. Lawrence (Figs. 2-3). Elsewhere in eastern Canada eels are fished in only in a minority of the habitat they occupy. Eels were commercially exploited in the Ontario portions of Lake Ontario and the upper St. Lawrence River until these fisheries were closed in 2004 (Fig. 2). Commercial fishing zones in Quebec are located on the St. Lawrence River upstream and downstream of Montreal, and also in the St. Lawrence River estuary (Figs. 2-3). Most commercial fishing in the Atlantic Provinces occurs in the southern Gulf of St. Lawrence, New Brunswick's Saint John River, various locations on the Atlantic drainages of the Maritime Provinces, and various locations in Newfoundland (Fig. 3). There is no eel fishing in the north shore of the Gulf of St. Lawrence, nearly all of the Gaspé Peninsula, most of the fresh waters draining into the southern Gulf of St. Lawrence, and most of the coastal waters of Newfoundland.

ONTARIO

Eels in Ontario are part of the Upper St. Lawrence River - Lake Ontario population, whose location is the most distant of any major rearing area from the American eel's spawning grounds. The principal historic areas used by eels in Ontario are the main stem of the St. Lawrence River, the eastern part of Lake Ontario, and the Ottawa River (Figs. 2 and 4, Verreault et al. 2004). Accessible tributaries to these water bodies were also occupied.

Eels were present in eastern Ontario waters in prehistoric time (from archaeological digs) and in early historic time (from contemporary reports) (Casselman 2003). Data from these sources suggest that eels were abundant and were a significant food source for native peoples (Junker-Andersen 1988, Casselman 2003).

Population status, fisheries, and management of eels in Ontario waters have been described by Hurley (1972, 1973), Kolenosky and Hendry (1978, 1982), Casselman et al. (1997a,b), Stewart et al. (1997), Casselman (2003), Marcogliese and Casselman (in press), and Mathers and Stewart (in press).

Table 1 and Fig. 5 present reported landings of American eels in Ontario. Landings have been influenced by market and contaminant considerations, as indicated in Table 1. The commercial fishery for eel in Ontario was closed in 2004. Table 2 and Fig. 6 present catch, effort, and catch per unit effort (CPUE) of setline (also known as hookline), hoopnet, and trapnet fisheries for American eels in eastern Lake Ontario, the Bay of Quinte, and the upper St. Lawrence River (Kolenosky and Hendry 1982). Table 3 and Fig. 7 present mean eels per haul from a trawl survey conducted in the Bay of Quinte, an arm of Lake Ontario, since 1972, and mean catch rates of an electrofishing survey conducted in eastern Lake Ontario since 1984. Note that the Quinte trawl results are in the form of arithmetic means, in contrast to the geometric means presented by Casselman et al. (1997b).

Eels moving up the St. Lawrence River towards Lake Ontario pass the Moses-Saunders hydroelectric dam between Cornwall, Ontario, and Massena, New York. This dam was constructed in 1954-1958. Eels

accumulated below this dam in such large numbers that they interfered with maintenance work when turbines were closed for cleaning (Whitfield and Kolenosky 1978). This prompted dam operators to construct an eel ladder on the Canadian side of the dam, which came into service in August 1974. This ladder was replaced with a new structure in 1980 (Marcogliese and Casselman in press). A ladder on the U.S. side of the dam came into service in summer 2006. The ladder on the Canadian side releases eels directly into the headpond. The ladder on the U.S. side leads into a pipe which releases eels 300 m upstream from the dam. This is intended to reduce the proportion of eels that ascend the ladder and then fall back through the dam. The Canadian data series has traditionally been referred to as the Moses-Saunders index. In this paper it is called the Saunders index, to distinguish it from the new U.S. series, which is called the Moses index.

Table 4 and Fig. 7 show mean daily counts of eels ascending the Saunders ladder during the 31 day summer peak migration period (Casselman et al. 1997a, Casselman 2003, Marcogliese and Casselman in press). Historically, the great majority of eels ascending the ladder did so in summer, but in recent years a substantial portion of the annual run has occurred in fall (Table 4, Fig. 7).

Table 5 presents age frequency distributions of eels sampled in Ontario waters, and also at the Moses Ladder on the U.S. side of the Moses-Saunders dam. Eels ascending the Saunders ladder had a mean age of 9.23 years in 1974 and 6.02 years in 1975 (Table 5). The higher mean age in 1974 vs. 1975 probably reflects the accumulation of eels which had been impeded from ascending above the dam before the opening of the ladder in 1974. Fig. 8. plots length frequency distributions of eels ascending the Saunders ladder in 1975-2006.

QUEBEC

Eels use Quebec as rearing habitat, and also use the St. Lawrence River as a migratory corridor to reach upstream rearing habitat, notably Lake Ontario and Lake Champlain. Eel status in Quebec has been reviewed by Axelsen (1997), Tremblay (1997) and Caron et al. (2006, 2007).

No time series of glass eels or elvers is available for Quebec waters. Dutil et al. (1989) documented glass eel and elver influx into the estuary of the Petite Rivière de la Trinité between mid June and the end of July. Glass eels or elvers have also been documented in June/July at Neuville, 25 km upstream from the Quebec City (Vladykov 1955), the Grande-Rivière-Blanche at St.-Ulric near Matane (Vladykov and Liew 1982), the Rivière Trinité and the nearby Petite Rivière Godbout (Vladykov 1966), and the Matamek River (Dolan 1975).

Eel fisheries are prosecuted in Quebec at the yellow and silver stages. Reported landings are presented in Table 6 and Fig. 9. There is a small eel fishery in the Magdalen Islands. There are two eel fishing permits for the south shore of the Gaspé Peninsula, but it is not known if these permits are active.

Migrating eels have been counted or estimated in the Petite Rivière de la Trinité, the Rivière Sud-Ouest, the Rivière Richelieu, the Rivière Saint-Jean, the Beauharnois Dam on the St. Lawrence, and the St. Lawrence estuary (Table 7, Fig. 10) (data from Caron et al. 2006, 2007). High counts in the first two years of operation of the Chambly fish ladder on the Richelieu may have been due to the accumulation of eels below the dam prior to ladder construction. Salmonid populations are monitored by electrofishing in many Quebec rivers. Eel capture data from these surveys are reported in Tables 8-11 and Fig. 11. Because of low eel captures, it is generally not possible to estimate densities by the depletion method. Data are therefore presented as summed counts over three sweeps per 100 m^2.

Number of eels caught in eel traps in the St. Lawrence in the Quebec City area (Fig. 12) are presented in Table 12 and Fig. 13 (data from de Lafontaine et al. in press). The experimental trap at Saint-Nicolas (also known as the Parc Aquarium experimental trap) primarily captures yellow eels in summer and silver eels during fall. Table 13 and Fig. 14 present effort and CPUE from two eel fishers at Rivière-Ouelle in the St. Lawrence estuary. Table 14 and Fig. 15 present effort and CPUE from commercial fisheries in the estuary, including those of Kamouraska County, where approximately 80% of eel fishing in the estuary is located (data from Axelsen 1997 and Verreault et al. 2003).

Lemire et al. (1978) and Pilote (1989) conducted extensive eel surveys on the north shore of the Gulf of St. Lawrence in 1978-1985 (Fig. 16). Catch, CPUE, length, and weight from this work are presented in Table 15. Lemire et al. (1978) provided detailed maps of study sites visited in 1978, but Pilote (1989) did not provide maps or coordinates for locations studied in 1979-1985. Some coordinates in Table 15 were derived by searching for place names given by Pilote (1989) in the National Atlas of Canada (www.atlas.nrcan.gc.ca). It is possible that some of these coordinates are for different localities than those visited by Pilote (1989).

Age frequency distributions of eels sampled in Quebec are presented in Table 16.

SOUTHERN GULF OF ST. LAWRENCE

American eels occupy fresh, brackish, and sheltered salt waters of Prince Edward Island and the Gulf drainages of New Brunswick and Nova Scotia. Smith and Saunders (1955), Eales (1966), Taylor (1979), Hutchison and Taylor (1980), Hutchison (1982), Locke et al. (1995), Chaput et al. (1997), and Paulin (1997) presented data on the distribution, status, and fisheries for American eels in this region. Cairns et al. (2007) presented a detailed compilation of southern Gulf abundance indicators. Landings of commercial fisheries in the southern Gulf region, which primarily target yellow eels in estuaries and bays, are presented in Table 17 and Fig. 17. Table 18 and Fig. 18 present catch rates of legal and sublegal eels from data recorded by volunteer logbook fishers on Prince Edward Island. Table 19 presents eel catch rates from commercial and research fishing in the southern Gulf. Tables 20-22 and Figs. 19-21 present eel densities derived from electrofishing surveys in the southern Gulf. For the Miramichi River, New Brunswick, the database for 1952-1969 was reconstructed using original paper records. Some

densities calculated from the new database differ from those reported by Cairns et al. (2007).

Table 23 presents eel densities derived from electrofishing, capture-mark-recapture, and glass bottom boat (GBB) surveys. GBB surveys were conducted at night from a 3.95 m boat equipped with a bottom window and underwater lights. Area surveyed was calculated as the product of transect width and length. Eel densities were estimated as eels counted within transect divided by survey area. Table 24 and Fig. 22 present counts of eels under 9.0 cm long at ramp and habitat traps at two sites on the central north shore of Prince Edward Island. Otolith aging indicates that 9.0 cm is the approximate cut-off between young-of-the-year and older eels in this area (Cairns unpubl.). Habitat trap catch rates are presented as catch per haul, rather than catch per gear-day, because habitat traps do not retain eels that enter them (Silberschneider et al. 2001). Table 25 and Fig. 23 present mean eel counts at interceptory fishing gears in the southern Gulf. Table 26 presents age-frequencies of eels in the southern Gulf.

SCOTIA-FUNDY

American eel distribution, fisheries, and status in the Scotia-Fundy area have been described by Smith and Saunders (1955), Eales (1966), Jessop (1975, 1982, 1996), Taylor (1979), Hutchison and Taylor (1980), Hutchison (1982), and Stevens (1997). American eels are fished as elvers and as yellow and silver eels in Scotia-Fundy (Fig. 24). This is the only region of Canada where an elver fishery operates (Jessop 1995). Landings, derived from a logbook system, are presented in Table 27-28 and Fig. 25. Table 29 and Fig. 26 present elver run sizes measured at the mouths of East River-Sheet Harbour and East River-Chester, Nova Scotia (Jessop 2000a,b; 2003). Electrofishing surveys are conducted in Scotia-Fundy rivers to assess salmonid populations (Gibson et al. 2003, Amiro et al. 2006, Jones et al. 2006). Because eel catches in these surveys are generally insufficient to allow population estimates by the depletion method, results are presented as the sum of eels counted per 100 m^2 (Tables 30 and 31, Fig. 27). Some electrofishing sessions in which eels were not recorded may have been deleted from files in the Nova Scotia part of Scotia-Fundy. This would have the effect of upwardly biasing mean counts per 100 m^2. Table 32 presents age frequencies of American eels in the Scotia-Fundy area.

NEWFOUNDLAND AND LABRADOR

Landings reported for the American eel fishery in Newfoundland and Labrador (Fig. 28) are presented in Table 33 and Fig. 29. Landings in this province are derived from a purchase slip system. Reported landings differ substantially from those reported in a logbook system (G. Vienott, DFO, St. John's, pers. comm.). Table 34 presents catch rates of American eels in research fyke nets set by Dietrich (2001) in Western Brook, near the outlet of Western Brook Pond, in Gros Morne National Park, Newfoundland. Table 35 presents age frequency distributions of American eels sampled in Newfoundland.

Detailed data on distribution and research catch rates of American eels in Newfoundland are presented by Vladykov (1970), Fletcher and Anderson (1973), Brennan (1976), and Mullins (1980). Bruce (1982) and Knight (1997) describe aspects of American eel status and fisheries in Newfoundland and Labrador.

CANADA AND INTERNATIONAL

Table 36 and Fig. 30 present reported American eel landings for Canada and the United States. Table 37 and Fig. 31 present values of eel landings in Canada, and Table 38 and Fig. 32 present mean price per kg of eel landings. Fig. 33 presents a schematic summary of Canadian data sets presented in this report, by eel stage and region. Eels from the St. Lawrence River system are well covered with indices for the yellow and silver stages, but lack indices for glass eels/elvers. The St. Lawrence River and the southern Gulf have long-term yellow eel abundance indices, but only the St. Lawrence River has long-term silver eel indices. Newfoundland is the most data-poor area of the American eel's Canadian range, and has no data sets that indicate abundance trends or absolute abundance at any life stage. All areas have at least some age structure data. Data coverage in eastern Quebec, the southern Gulf of St. Lawrence, and Scotia-Fundy is intermediate between that of the St. Lawrence River system and Newfoundland.

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Table 1. Reported landings and landed values of American eels in Ontario.

Year	Reported landings (t)				Landed value ($Can)	Year	Reported landings (t)				Landed value ($Can)	Comments[a]
	Bay of Quinte	Eastern Lake Ontario	Upper St. Lawrence River	Total			Bay of Quinte	Eastern Lake Ontario	Upper St. Lawrence River	Total		
1884				2.54	280	1946				15.74	2,082	
1885				4.04	445	1947				15.15	2,004	
1886				8.80	970	1948				17.96	2,772	
1887				6.49	715	1949				20.87	2,300	
1888				4.17	460	1950				13.02	1,435	
1889				6.17	680	1951				21.59	2,856	
1890				8.48	935	1952				29.44	5,192	
1891				9.30	1,025	1953				25.81	4,552	
1892				19.78	2,180	1954				35.38	3,900	
1893				30.75	3,390	1955				30.84	3,400	
1894				35.43	3,905	1956	7.07	8.07	3.64	18.78	4,555	
1895				26.63	2,935	1957	20.43	19.82	4.71	44.96	10,903	
1896				32.57	3,590	1958	29.15	18.93	5.47	53.54	14,166	
1897				14.29	1,575	1959	20.76	31.78	3.30	55.84	16,003	
1898				18.87	2,080	1960	18.97	25.29	5.78	50.05	13,240	
1899				15.79	1,740	1961	24.76	28.57	5.77	59.09	15,634	
1900				18.33	2,020	1962	19.96	24.27	4.99	49.22	13,022	
1901				30.39	3,350	1963	30.41	37.50	9.03	76.93	32,224	
1902				29.62	3,265	1964	44.25	53.74	13.46	111.45	49,141	
1903				16.65	1,835	1965	27.36	46.38	11.86	85.60	37,741	
1904				20.68	2,280	1966	21.76	34.95	8.20	64.91	34,344	
1905				8.75	965	1967	17.73	34.74	9.06	61.53	35,266	
1906				8.35	920	1968	28.87	42.02	7.55	78.44	43,234	
1907				9.25	1,020	1969	33.77	37.11	5.79	76.68	42,264	
1908				10.16	1,120	1970	31.01	26.35	8.79	66.15	36,459	A
1909				29.71	3,275	1971	26.54	43.86	5.83	76.23	42,013	
1910				47.63	5,250	1972	29.18	89.16	4.73	123.07	67,828	B
1911				62.91	6,935	1973	30.45	49.35	5.62	85.42	50,845	
1912				102.24	11,270	1974	30.04	66.94	3.68	100.66	66,575	
1913				86.77	9,565	1975	36.54	117.04	14.04	167.62	195,858	
1914				136.03	14,995	1976	32.78	107.00	15.41	155.18	160,798	
1915				99.70	10,990	1977	32.12	134.48	21.27	187.88	157,395	
1916				64.77	7,140	1978	42.76	169.26	18.14	230.53	472,649	
1917				57.15	6,300	1979	46.79	145.53	30.98	223.30	674,426	
1918				61.87	6,820	1980	42.41	102.15	20.78	165.34	444,707	
1919				75.89	8,365	1981	33.62	54.72	20.42	108.76	251,765	
1920				41.69	4,595	1982	11.64	7.96	9.66	29.25	34,178	C
1921				50.89	5,610	1983	19.25	27.13	29.78	76.16	120,891	
1922				66.63	7,345	1984	22.12	77.88	23.37	123.38	255,680	
1923				56.20	6,195	1985	24.22	61.00	19.56	104.78	244,860	D
1924				54.34	5,990	1986	30.37	65.45	21.20	117.03	276,061	
1925				68.81	7,585	1987	18.78	62.26	22.68	103.72	237,802	
1926				52.21	5,755	1988	18.49	68.76	18.89	106.14	234,002	
1927				48.72	5,370	1989	22.57	76.37	23.52	122.46	348,264	
1928				40.96	4,515	1990	24.47	65.65	29.87	119.99	309,495	
1929				33.57	3,700	1991	29.47	68.39	20.04	117.89	356,081	
1930				43.77	4,825	1992	28.66	67.47	27.87	124.00	505,746	
1931				32.84	3,620	1993	20.27	68.20	17.33	105.80	230,918	
1932				22.45	2,475	1994	14.42	47.83	20.72	82.97	362,178	
1933				28.67	3,160	1995	12.13	28.92	21.62	62.67	276,330	
1934				22.36	2,465	1996	11.75	26.62	18.83	57.20	315,263	
1935				27.03	2,980	1997	8.22	20.94	11.93	41.08	193,206	
1936				23.86	2,630	1998	3.19	4.00	12.17	19.36	54,643	E
1937				29.94	3,300	1999	5.52	0.93	12.58	19.03	57,049	
1938				19.19	2,115	2000	5.10	7.96	14.42	27.49	159,195	
1939				10.30	1,135	2001	3.47	7.79	15.12	26.37	156,901	
1940				14.61	1,610	2002	1.79	3.12	6.15	11.06	58,945	
1941				7.44	820	2003	1.33	2.05	9.84	13.22	72,574	
1942				7.12	785	2004	0.14	0.00	0.00	0.14	1,225	F
1943				15.74	1,735	2005	0.00	0.00	0.00	0.00	0	
1944				18.05	1,990	2006	0.00	0.00	0.00	0.00	0	
1945				19.73	3,480	2007	0.00	0.00	0.00	0.00	0	

[a]Comments: A - Fishery closed E of 76°50'W due to mercury contamination
B - Harvest increased due to improvement in export markets
C - Closure of European market due to contaminants
D - 1985 to 1988 – commercial license buyout by OMNR
E - 1998 to 1999 – reduced effort, size limits and some zone closures due to contaminants
F - Fishery closed

Table 2. Catch, effort, and catch per unit effort in setline (hookline), hoopnet, and trapnet fisheries for American eels in Ontario, 1959-1983. Eastern Lake Ontario data are from Statistical Districts (SDs) 3 and 6 (Fig. 4). Bay of Quinte data are from SD 4. Upper St. Lawrence River data are from SD 5.

Year	Setline fishery						Hoopnet fishery									Trapnet fishery								
	Eastern L. Ontario			Bay of Quinte			Eastern L. Ontario			Bay of Quinte			Upper St. Lawrence R.			Eastern L. Ontario			Bay of Quinte			Upper St. Lawrence R.		
	Catch (kg)	Effort (100s of hook-line hrs)	Catch/ effort	Catch (kg)	Effort (100s of hook-line hrs)	Catch/ effort	Catch (kg)	Effort (number of net lifts)	Catch/ effort	Catch (kg)	Effort (number of net lifts)	Catch/ effort	Catch (kg)	Effort (number of net lifts)	Catch/ effort	Catch (kg)	Effort (number of net lifts)	Catch/ effort	Catch (kg)	Effort (number of net lifts)	Catch/ effort	Catch (kg)	Effort (number of net lifts)	Catch/ effort
1959	10,205	538	18.97	14,078	2,071	6.80	8,493	1,549	5.48	6,544	5,054	1.29	2,243	1,307	1.72									
1960	14,030	826	16.99	13,464	1,550	8.69	5,647	1,800	3.14	4,293	4,691	0.92	4,843	2,110	2.30									
1961	19,174	968	19.81	19,194	1,934	9.92	3,835	1,298	2.95	5,196	4,816	1.08	5,368	1,563	3.43									
1962	20,249	1,263	16.03	15,218	1,600	9.51	2,610	1,242	2.10	4,624	4,632	1.00	4,837	1,868	2.59									
1963	26,192	1,992	13.15	23,206	2,696	8.61	3,285	1,240	2.65	6,138	6,606	0.93	6,219	2,989	2.08									
1964	44,513	2,886	15.42	35,131	3,903	9.00	6,188	2,022	3.06	7,266	5,847	1.24	5,338	2,032	2.63	141	4	35.25						
1965	32,340	1,958	16.52	18,564	2,701	6.87	6,547	1,931	3.39	8,783	6,066	1.45	3,013	1,911	1.58	976	62	15.74						
1966	17,145	1,370	12.51	10,178	2,422	4.20	8,824	2,195	4.02	7,473	5,836	1.28	2,620	1,780	1.47	3,119	150	20.79						
1967	17,836	1,297	13.75	9,053	1,889	4.79	7,334	3,856	1.90	8,437	5,286	1.60	3,876	1,988	1.95	4,727	320	14.77						
1968	17,014	1,469	11.58	17,984	2,598	6.92	15,020	4,423	3.40	10,840	6,907	1.57	6,800	2,898	2.35	8,261	754	10.96						
1969	18,501	1,230	15.04	26,346	4,117	6.40	9,993	3,004	3.33	7,147	6,037	1.18	4,810	2,287	2.10	8,381	747	11.22						
1970	9,389	622	15.09	24,379	3,478	7.01	8,098	2,763	2.93	6,405	5,389	1.19	6,850	2,016	3.40	8,118	555	14.63						
1971	16,281	1,003	16.23	20,380	3,242	6.29	11,383	2,110	5.39	6,103	3,979	1.53	5,586	1,410	3.96	12,639	567	22.29	200	32	6.25			
1972	57,623	2,489	23.15	22,271	2,938	7.58	4,868	1,870	2.60	6,403	4,624	1.38	4,198	1,979	2.12	16,159	630	25.65	536	110	4.87			
1973	28,641	2,057	13.92	21,359	2,523	8.47	5,518	3,660	1.51	8,288	5,528	1.50	5,621	3,329	1.69	8,185	540	15.16	649	50	12.98			
1974	40,036	2,418	16.56	21,100	2,404	8.78	7,029	3,628	1.94	8,930	4,606	1.94	3,677	2,160	1.70	15,955	391	40.81						
1975	73,952	4,537	16.30	27,370	3,251	8.42	14,990	4,436	3.38	9,194	5,025	1.83	7,392	3,119	2.37	18,129	488	37.15				1,202	580	2.07
1976	77,551	5,230	14.83	24,349	1,992	12.22	7,379	3,511	2.10	8,434	4,809	1.75	4,084	2,680	1.52	21,138	1,250	16.91				760	367	2.07
1977	94,812	5,500	17.24	20,333	2,000	10.17	11,200	4,510	2.48	10,628	5,712	1.86	5,169	2,345	2.20	18,165	1,040	17.47	1,156	79	14.63	1,317	257	5.12
1978	128,798	7,568	17.02	29,611	3,095	9.57	7,999	7,349	1.09	10,808	9,310	1.16	4,079	1,480	2.76									
1979	108,107	8,685	12.45	37,449	3,301	11.34	7,760	7,187	1.08	13,540	10,856	1.25	8,334	2,287	3.64									
1980	79,884	9,836	8.12	29,576	4,054	7.30	7,402	5,144	1.44	14,063	12,059	1.17	5,963	1,954	3.05									
1981	42,811	5,061	8.46	17,436	2,976	5.86	3,776	4,782	0.79	16,373	14,872	1.10	5,224	3,013	1.73									
1982	2,166	468	4.63	6,378	1,144	5.58	2,192	4,949	0.44	6,105	13,639	0.45	3,675	3,095	1.19									
1983	22,934	2,425	9.46	11,346	1,748	6.49	4,986	10,967	0.45	6,081	14,805	0.41	4,688	5,194	0.90									

Table 3. American eel trawl and electrofishing indices for Lake Ontario.

Year	Bay of Quinte, mean eels per trawl	Eastern L. Ontario basin, eels electrofished per hour
1972	5.231	
1973	4.250	
1974	2.000	
1975	5.250	
1976	3.083	
1977	1.917	
1978	0.667	
1979	2.667	
1980	0.500	
1981	1.000	
1982	2.500	
1983	0.333	
1984	0.500	85.60
1985	0.833	63.10
1986	1.833	82.90
1987	2.111	89.00
1988	0.556	68.80
1989	1.088[a]	93.00
1990	0.417	64.10
1991	1.125	38.50
1992	1.125	44.40
1993	0.705	22.70
1994	2.042	30.00
1995	0.125	10.50
1996	0.583	14.90
1997	0.135	7.30
1998	0.160	12.90
1999	0.042	21.60
2000	0.083	9.37
2001	0.021	6.82
2002	0.042	3.36
2003	0.000	0.65
2004	0.000	0.52
2005	0.000	1.23
2006	0.000	0.49

[a]Survey data are unavailable for 1989. The number given is the mean of the values for the 4 preceeding and the 4 succeeding years.

Table 4. The Saunders ladder index of eel recruitment to the upper St. Lawrence River. Data for 1974-1995 from Casselman et al. 1997a. Data for 1997-2006 from Lake Ontario Management Unit, OMNR.

Year	Number of days ladder operating	Estimated total annual passage	31 day peak summer period							Mean eels per day during the 31 day peak fall period
			Start	End	Number of days	Eels per day			Percent of estimated tot. annual passage	
						Mean	95% CI	CV		
1974[a]	33	130,000	12 Aug	21 Aug	7	7,934	2,400	32.7	42.7	
1975[a]	88	936,128	14 Jul	13 Aug	30	14,403				
1976	98	659,478	20 Jul	19 Aug	31	10,363	514	13.5	48.7	
1977[b]		966,800				20,013				
1978[b]		794,600				16,448				
1979	91	869,135	1 Aug	31 Aug	31	18,977	657	9.4	67.7	
1980[c]	70	253,758	21 Jul	20 Aug	20	9,046	3,196	75.5	71.3	
1981	105	748,724	15 Jul	14 Aug	31	13,796	1,459	28.8	57.1	
1982	100	1,013,570	18 Jul	17 Aug	31	27,489	1,992	19.8	84.1	
1983	94	1,313,570	16 Jul	15 Aug	31	26,426	1,088	11.2	62.4	
1984	75	647,480	20 Jul	19 Aug	31	15,051	1,458	26.4	72.1	
1985	110	935,320	24 Jul	23 Aug	31	18,510	453	6.7	61.2	
1986	95	230,570	29 Jul	28 Aug	31	5,380	551	28.0	72.3	
1987[d]	125	465,364	3 Jul	2 Aug	28	9,277	818	22.7	55.8	
1988	78	213,187	10 Jul	9 Aug	31	5,442	765	38.3	79.1	
1989	87	258,622	10 Jul	9 Aug	31	5,795	905	42.6	69.5	
1990	85	121,907	9 Jul	8 Aug	31	3,096	367	32.3	78.7	
1991	84	40,241	14 Jul	13 Aug	30	1,226	344	75.1	91.4	
1992	101	11,534	18 Jul	17 Aug	31	277	69	67.3	74.3	
1993	60	8,289	31 Jul	30 Aug	31	232	36	42.2	86.8	
1994	86	163,518	8 Jul	7 Aug	31	4,998	1,389	75.8	94.8	
1995[e]	92	35,076	17 Jul	16 Aug	31	671	185	75.2	59.3	
1996[f]					31	405				
1997		6,117			31	144	67			49
1998	34	3,432	2 Jul	1 Aug	31	57				36
1999	149	1,860	19 Jun	19 Jul	31	27				19
2000	140	2,919	18 Jul	17 Aug	31	54				12
2001	159	944	19 Jun	19 Jul	31	21				7
2002	143	2,663	7 Jul	6 Aug	31	55				17
2003	143	2,835	7 Jul	6 Aug	31	40				20
2004	143	11,385	11 Jul	10 Aug	31	54				274
2005	146	14,891	30 Jun	1 Aug	31	228				160
2006	134	17,144	11 Jul	12 Aug	31	224				

[a]Mean daily passage, based on a 31-day peak period estimated from the mean dates demarcating the 95% confidence limits for the mean summer peak period over the period 1974-1995.

[b]Counts are not available for these years. Mean daily passage is estimated using the regression equation:

$Y_{(\text{mean for the peak period})} = 0.0207X_{(\text{estimated total annual passage})}$.

[c]Construction of a new eel ladder resulted in reduced total counts.

[d]Installation of an electronic eel counter between 27 July and 2 August.

[f]Counts are not available. The value given for 1996 is the mean of the values for 1995 and 1997.

Table 5. Mean ages and age frequency distributions of American eels in Ontario and in St. Lawrence River waters of New York State. Eels are considered to be age 0 in their year of arrival in continental waters.

System	Lake Ontario	Lake Ontario, St. Lawrence R.	St. Lawrence R.	St. Lawrence R.	St. Lawrence R.	St. Lawrence R.	St. Lawrence R.	St. Lawrence R.	St. Lawrence R.	St. Lawrence R.	St. Lawrence R.	St. Lawrence R.
Site	Eastern Lake	Eastern Lake, Upper St. Law. R.	Upper St. Law. R.	Iroquois Dam	Saunders Dam	Saunders Dam	Saunders Dam	Saunders Dam	Saunders Dam	Saunders Dam	Saunders Dam	Saunders Dam
Habitat	Lake	Lake	River	River	River	River	River	River	River	River	River	River
Stage	Yellow	Yellow	Silver	Silver	Ascending juveniles	Ascending juveniles	Ascending juveniles	Ascending juveniles	Ascending juveniles	Ascending juveniles	Ascending juveniles	Ascending juveniles
Year	1958-1966	mid 1990s	1960s	2002	1974	1975	1981	1986	1993	2000	2003	2004
Gear	Various	Electrofishing		Fixed trawl	Ladder trap	Ladder trap	Ladder trap	Ladder trap	Ladder trap	Ladder trap	Ladder trap	Ladder trap
Exploited	Yes	Yes	Yes	Yes								
Source	Hurley 1972	Casselman 2003, Casselman et al. 1997	Casselman et al. 1997	Tremblay 2004, unpubl.	Liew 1976	Liew 1976	Greer 2008	Greer 2008	Casselman 2003, Casselman et al. 1997	Greer 2008	Greer 2008	Greer 2008
Length (cm)												
Mean		83.8		100.1		33.2			49.3			
SD				6.6								
N				30		533			65			
Age (years)												
Mean	11.5	17.8	19.7	21.0	9.2	6.0	9.0	7.8	11.9	8.8	10.1	8.4
SD	2.7			4.0	2.0	1.7						
N	195			30	322	533						
0												
1												
2						2						
3						31						
4	3					74						
5					7	117						
6	4				21	102						
7	10				39	96						
8	12				52	67						
9	10				68	32						
10	27				44	9						
11	25				57	3						
12	27				13							
13	33				9							
14	23			2	11							
15	12			2	1							
16	5			1								
17	3			1								
18	1			2								
19				1								
20				4								
21				4								
22				3								
23				1								
24				4								
25				2								
26				2								
27												
28												
29												
30				1								
31												
32												

Table 5 (continued)

System	St. Lawrence R.	St. Lawrence R.	St. Lawrence R.	Ottawa R.
Site	Saunders Dam	Moses Dam	Moses-Saunders Dam	Chats Falls
Habitat	River	River	River	River
Stage	Ascending juveniles	Ascending juveniles	Ascending juveniles	Upstream migrants
Year	2006	2006	2006	1963-1964
Gear	Ladder trap	Ladder trap	Ladder trap	Trap
Exploited				No
Source	K. Oliveira unpubl.	K. Oliveira unpubl.	K. Oliveira unpubl.	Hurley 1972
Length (cm)				
Mean	34.8	38.9	35.4	
SD	5.1	5.0	5.2	
N	38	6	44	
Age (years)				
Mean	6.6	6.7	6.6	4.5
SD	1.6	2.0	1.6	2.2
N	38	6	44	17
0				
1				
2				3
3				5
4	1		1	2
5	8	3	11	1
6	14		14	2
7	5	1	6	2
8	4		4	1
9	5	2	7	1
10				
11	1		1	
12				
13				
14				
15				
16				
17				
18				
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20				
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31				
32				

Table 6. Reported commercial landings (t) of American eels in Quebec, by year, stage, and region. Data for 2006 are preliminary.

Year	Lake Saint-Francis Yellow	St. Lawrence Montreal Yellow	Ottawa River	Richelieu R. Silver	Lake Saint-Pierre			St. Lawrence estuary							Quebec totals		
					Yellow	Silver	Total	Riverine estuary			Middle estuary Silver	Maritime estuary Silver	Total Silver	Total	Yellow	Silver	Total
								Yellow	Silver	Total							
1920		4.4		53.8	1.5	3.2	4.7	2.2	153.4	155.6	54.7	1.4	209.5	211.7	8.1	266.5	274.6
1921	0.5	3.5		52.7	3.7	8.0	11.7	2.1	150.3	152.4	86.5	2.8	239.5	241.7	9.8	300.3	310.1
1922	0.5	15.6		49.7	3.0	6.6	9.6	5.0	349.4	354.4	20.7	0.0	370.2	375.1	24.1	426.4	450.5
1923	0.8	43.9		39.7	4.5	9.7	14.2	6.1	432.1	438.3	18.4	0.0	450.5	456.7	55.2	500.0	555.2
1924	0.9	70.1		40.6	3.9	8.4	12.3	5.1	356.8	361.9	44.3	6.6	407.7	412.8	79.9	456.8	536.7
1925		33.6		47.3	6.7	14.5	21.2	4.9	342.5	347.4	77.9	4.7	425.1	430.0	45.2	486.9	532.1
1926	1.9	31.6		54.6	8.0	17.3	25.3	10.1	714.6	724.8	104.5	9.3	828.5	838.6	51.6	900.3	951.9
1927	1.3	32.0		45.4	9.8	21.2	31.0	5.8	411.3	417.1	41.6	30.5	483.4	489.2	48.9	550.0	598.9
1928	1.6	42.5		46.0	13.3	29.0	42.3	10.9	765.7	776.5	42.4	30.4	838.4	849.3	68.3	913.5	981.8
1929	0.9	25.2		42.5	15.7	34.1	49.8	4.8	335.6	340.3	44.5	17.5	397.5	402.3	46.6	474.1	520.7
1930	4.5	39.3		38.0	17.4	37.9	55.3	5.2	367.8	373.0	43.4	24.0	435.1	440.4	66.5	511.0	577.5
1931	1.0	42.0		48.5	25.6	55.7	81.4	7.4	523.2	530.6	51.5	13.8	588.5	595.9	76.1	692.8	768.8
1932	1.0	28.7		56.7	51.3	111.6	162.9	7.2	505.7	512.9	55.4	25.4	586.5	593.7	88.1	754.8	842.9
1933	1.3	32.3		59.6	52.8	114.8	167.6	10.2	717.1	727.3	71.0	28.7	816.8	827.0	96.6	991.2	1087.8
1934	0.9	34.4		63.7	58.5	127.3	185.8	9.0	631.8	640.8	53.8	28.9	714.5	723.5	102.8	905.5	1008.3
1935	0.8	32.5		64.0	58.7	127.6	186.3	9.0	631.4	640.4	55.3	28.5	715.3	724.2	100.9	906.9	1007.9
1936	0.8	31.6		64.0	55.6	120.9	176.5	8.6	603.5	612.0	55.4	28.6	687.5	696.0	96.6	872.4	968.9
1937	0.7	14.5		72.6	33.7	73.3	107.0	7.7	542.1	549.8	49.9	30.2	622.1	629.8	56.6	768.0	824.6
1938	0.9	15.4		74.8	35.0	76.1	111.1	7.7	544.7	552.5	52.6	29.3	626.6	634.3	59.1	777.6	836.6
1939	1.4	14.3		72.6	14.6	31.7	46.3	7.8	550.6	558.4	49.9	25.0	625.4	633.2	38.1	729.7	767.8
1940	0.9	4.5		54.4	12.0	26.1	38.1	3.8	269.5	273.3	9.1	18.1	296.7	300.5	21.3	377.2	398.5
1941	0.7				15.1	32.9	48.1	0.9	60.4	61.2	12.2	9.5	82.1	83.0	16.7	115.1	131.8
1942	1.1	4.1			16.7	36.3	53.0	5.4	381.3	386.7	12.0	11.3	404.6	410.0	27.4	440.9	468.3
1943	2.0	15.0			26.6	57.9	84.6	7.1	496.9	503.9	11.5	18.1	526.6	533.6	50.7	584.5	635.2
1944	1.1	4.2			12.0	26.0	38.0	3.1	221.3	224.5	13.0	11.8	246.1	249.2	20.5	272.1	292.5
1945	1.9	6.3		23.0	27.3	59.3	86.6	3.7	261.4	265.1	1.0	0.9	263.4	267.1	39.2	345.7	384.9
1946	1.0	3.2		21.7	15.9	34.6	50.4	3.4	236.1	239.5	5.2	0.0	241.3	244.7	23.4	297.6	321.0
1947	0.9	2.6		1.0	15.0	32.6	47.6	3.7	263.0	266.7	2.3	0.7	265.9	269.7	22.2	299.5	321.6
1948	0.3	1.5		8.8	7.5	16.2	23.7	2.4	172.0	174.4	13.3	0.0	185.3	187.7	11.8	210.3	222.1
1949	0.4	1.6		22.4	5.9	12.9	18.9	1.4	98.3	99.7	40.4	1.0	139.7	141.1	9.3	175.0	184.3
1950	0.4	1.8		33.3	4.9	10.7	15.6	2.9	203.2	206.1	39.5	2.1	244.8	247.7	10.0	288.8	298.8
1951	0.4	1.2		24.2	6.5	14.0	20.5	3.5	245.8	249.3	54.1	0.6	300.6	304.0	11.6	338.8	350.4
1952	0.5	1.3		12.4	7.0	15.2	22.2	4.2	292.5	296.6	57.2	0.9	350.5	354.6	12.9	378.1	391.0
1953	0.5	0.7		18.6	7.2	15.6	22.8	4.2	293.0	297.2	59.6	3.3	356.0	360.2	12.5	390.1	402.6
1954	0.9	0.8		12.6	9.5	20.7	30.2	3.4	236.6	239.9	56.3	11.5	304.3	307.7	14.5	337.6	352.1
1955	1.1	0.9		16.9	13.1	28.6	41.7	3.8	267.4	271.2	59.2	9.5	336.1	339.9	18.9	381.5	400.4
1956	1.2	1.4		28.3	8.0	17.4	25.4	3.6	251.6	255.1	78.6	4.1	334.3	337.9	14.2	380.0	394.2
1957	1.0	0.9		30.2	7.4	16.1	23.5	5.7	404.2	410.0	92.9	2.0	499.2	504.9	15.0	545.5	560.4
1958	1.2	0.8		18.1	16.8	36.6	53.5	3.8	266.3	270.1	131.5	2.0	399.7	403.5	22.6	454.4	477.0
1959	0.5	0.6		33.1	16.6	36.1	52.8	2.8	195.8	198.5	94.3	8.4	298.5	301.3	20.5	367.7	388.2
1960	1.8	0.7		19.1	15.2	33.0	48.2	2.6	180.7	183.3	205.8	3.2	389.7	392.3	20.3	441.8	462.1
1961	2.0	1.6		17.0	17.1	37.1	54.2	2.0	137.7	139.7	164.2	2.8	304.7	306.6	22.7	358.8	381.5
1962	1.8	6.3		26.3	19.5	42.5	62.0	1.4	100.4	101.8	181.3	3.8	285.5	286.9	29.1	354.2	383.3
1963	1.0	1.2		35.5	24.4	53.0	77.4	2.2	153.9	156.1	191.9	5.2	351.1	353.3	28.7	439.6	468.2
1964	0.3			44.4	28.3	61.5	89.7	1.6	110.6	112.2	196.5	4.0	311.1	312.7	30.2	417.0	447.2
1965	0.1	0.1		51.6	27.6	59.9	87.5	2.1	148.6	150.7	253.9	3.9	406.4	408.5	29.9	517.9	547.8
1966	0.4			49.9	26.5	57.6	84.1	1.5	108.8	110.3	235.2	8.0	351.9	353.5	28.5	459.4	487.9
1967	0.8	0.1		37.2	25.5	55.5	81.1	0.9	64.7	65.6	227.5	23.3	315.5	316.4	27.3	408.2	435.5
1968	0.5			36.0	28.4	61.7	90.0	1.4	100.0	101.4	204.7	65.2	369.9	371.3	30.2	467.5	497.8
1969	0.4			22.8	26.1	56.8	83.0	1.1	75.8	76.8	245.9	83.8	405.5	406.6	27.6	485.1	512.7
1970	0.3			1.1	9.0	19.6	28.7	0.4	31.7	32.1	170.4	81.1	283.1	283.6	9.8	303.9	313.6
1971	0.0			24.4	5.7	12.3	17.9	0.2	13.5	13.7	165.0	92.2	270.7	270.9	5.8	307.4	313.2
1972	1.3	0.4		7.6	28.2	61.2	89.4	0.3	21.9	22.3	153.9	34.0	209.8	210.1	30.2	278.6	308.8
1973	0.7			1.0	21.4	46.5	67.8	0.3	20.7	21.0	138.3	72.0	231.0	231.3	22.3	278.5	300.8
1974	0.6			34.1	27.6	60.0	87.6	0.3	18.6	18.8	190.7	56.9	266.1	266.4	28.4	360.2	388.6
1975	1.1	0.2		41.4	25.2	54.8	80.0	0.5	33.3	33.8	303.9	64.5	401.7	402.1	27.0	497.8	524.9
1976	2.3	0.0		20.0	31.6	68.6	100.2	0.3	20.3	20.6	222.4	52.5	295.1	295.4	34.1	383.8	417.9
1977	0.1	0.1		47.3	23.7	51.6	75.3	0.3	21.1	21.4	282.4	80.3	383.8	384.1	24.2	482.7	506.9
1978	0.3	0.0		37.2	28.2	61.3	89.4	0.3	22.7	23.0	295.6	79.9	398.1	398.5	28.8	496.6	525.4
1979	1.1			43.0	26.6	57.9	84.5	0.5	32.1	32.5	256.1	88.2	376.3	376.8	28.2	477.2	505.3

Table 6 (continued)

Year	Lake Saint-Francis Yellow	St. Lawrence Montreal Yellow	Ottawa River	Richelieu R. Silver	Lake Saint-Pierre			St. Lawrence estuary							Quebec totals		
					Yellow	Silver	Total	Riverine estuary			Middle estuary Silver	Maritime estuary Silver	Total Silver	Total	Yellow	Silver	Total
								Yellow	Silver	Total							
1980	0.9			66.3	24.0	52.2	76.2	0.4	25.5	25.9	314.6	111.5	451.7	452.1	25.2	570.2	595.4
1981	2.1			72.9	28.4	61.7	90.1	0.5	33.0	33.5	320.6	80.9	434.5	434.9	30.9	569.1	600.1
1982	1.6			48.9	22.5	49.0	71.6	0.4	27.1	27.5	153.3	78.4	258.8	259.2	24.6	356.6	381.2
1983	0.9			33.0	23.4	50.8	74.2	0.3	22.5	22.8	174.9	46.0	243.3	243.7	24.6	327.2	351.7
1984	2.4			21.9	28.2	61.3	89.5	0.2	16.1	16.4	253.2	28.4	297.7	297.9	30.8	380.9	411.7
1985				47.5							249.0	93.0	342.0	342.0	0.0	389.5	389.5
1986	4.6	0.0	0.1	48.1	22.0	47.8	69.8	0.8	55.6	56.4	239.0	22.4	317.0	317.8	27.4	412.9	440.3
1987	4.2	0.0	0.1	36.7	15.7	34.1	49.8	0.8	53.1	53.9	243.3	31.2	327.6	328.4	20.7	398.5	419.1
1988	5.2	0.0	0.2	33.3	13.9	30.2	44.1	0.8	59.1	59.9	255.5	26.2	340.8	341.6	19.9	404.2	424.1
1989	9.2	0.0	0.3	25.9	17.8	38.7	56.6	0.8	56.9	57.8	253.0	27.7	337.6	338.4	27.8	402.3	430.1
1990	15.7	0.0	0.2	19.0	16.8	36.6	53.4	1.3	88.8	90.0	276.2	19.4	384.3	385.6	33.8	439.9	473.7
1991	12.7	1.3	0.1	21.9	15.8	34.3	50.1	0.7	49.5	50.2	235.3	23.0	307.9	308.6	30.5	364.1	394.6
1992	6.8	3.2	0.1	19.7	13.7	29.7	43.4	1.0	68.6	69.6	158.5	21.2	248.2	249.2	24.7	297.6	322.3
1993	2.2	1.5	0.6	14.1	16.5	35.8	52.2	0.8	55.3	56.1	181.6	22.2	259.1	259.9	21.0	309.0	330.0
1994	5.2	0.0	0.2	8.4	14.6	31.7	46.3	0.9	60.2	61.1	144.7	16.5	221.4	222.3	20.7	261.5	282.3
1995	10.0	0.0	0.0	12.6	11.7	25.5	37.2	1.1	74.7	75.7	120.1	22.6	217.4	218.4	22.8	255.4	278.2
1996	14.1	0.0	0.1	2.1	14.4	31.3	45.8	0.8	55.7	56.5	93.9	13.3	162.9	163.7	29.3	196.3	225.6
1997	15.6	0.3	0.7	4.7	10.2	22.2	32.4	0.7	47.9	48.6	88.5	11.4	147.8	148.5	26.7	174.7	201.4
1998	10.6	0.2	0.3	0.0	10.9	23.7	34.5	0.8	54.0	54.7	110.6	16.6	181.1	181.9	22.5	204.8	227.3
1999	10.0	0.7	0.3	0.0	8.2	17.7	25.9	0.7	46.4	47.0	77.7	16.0	140.1	140.8	19.6	157.9	177.4
2000	23.3	0.4	0.4	0.0	12.4	27.0	39.4	0.8	53.1	53.8	61.3	13.4	127.8	128.6	36.9	154.8	191.7
2001	25.2	1.1	0.2	0.0	8.1	17.7	25.8	0.7	50.6	51.4	59.8	11.1	121.5	122.3	35.2	139.2	174.4
2002	23.6	1.1	0.0	0.0	9.6	21.0	30.6	0.6	43.0	43.6	62.5	6.5	111.9	112.6	34.9	132.9	167.8
2003	23.6	1.0	0.0	0.0	6.2	13.4	19.6	0.5	33.2	33.7	46.8	12.8	92.9	93.4	31.2	106.3	137.6
2004	29.0	0.5	0.1	0.0	7.8	16.9	24.7	0.5	35.1	35.6	47.3	3.8	86.2	86.7	37.8	103.2	140.9
2005	16.0	0.3	0.0	0.0	4.0	8.6	12.6	0.5	34.7	35.2	51.2	3.5	89.4	89.9	20.8	98.0	118.8
2006	5.6	0.0	0.0	0.0	3.6	7.7	11.3	0.6	41.0	41.6	44.8	1.9	87.7	88.2	9.7	95.4	105.1

Table 7. Abundance indicators for migrating small eels, yellow eels, and silver eels in Quebec. Data from Bernard and Desrochers (2006) (Chambly and Beauharnois) and from Caron et al. (2007) (all other series).

Year	Small eels		Yellow eels					Silver eels				
	Petite Trinité		Sud-Ouest		Richelieu	Beauharnois[c]		St. Lawrence, upstream from Quebec City	Sud Ouest		Petite Trinité	Saint-Jean
	Visual counts of eels creeping up rocks	CMR[a] estimate	Visual count of eels ascending a rock face	Fishway trap at falls	Chambly Ladder count	West	East	CMR estimate	Fish fence count with gaps during the season	Full fish fence count	CMR[a] Estimate	Partial estimate
Mean size (cm)	>15	>12	22.8	24.6	32.5-38.6	34.4-47.2	34.0-44.9	84.8	102.8		64.2	45.7
Age	1-2	1-2	2-10	2-10	4-12	4-12						
1982	4,027											
1983	3,643											
1984	732											
1985	581											
1993	1,178											
1994	488		16,617			24,721[d]	15,134[d]					
1995	3,440					17,072[d]						
1996	3,550		2,280					488,000	214			
1997					10,863[b]			397,000				
1998					9,875	5,441[d]						
1999		13,912		407	3,685	10,692				315	2,309	
2000		19,829		285	239	6,881			34		3,019	
2001		17,534		435	357	13,099				108	2,855	
2002					240	10,503	32,608			68		
2003				570	3,336	32,684	26,885			60		
2004				407	727	42,635	15,951		108			2,000
2005				2,279	2,177	51,694	2,932					
2006				2,171	434	50,389	28,127					

[a]Capture-mark-recapture

[b]In 1997, most counted eels were released downstream from the dam to test the efficiency of the eel passage facility.

[c]Ascending eels were counted in traps at the west site in 1994-1995 and 1998-2001, and at the east site in 1994 and 2002-2003. Permanent eel ladders with counting facilities were installed at the west site in 2002 and at the east site in 2004. Eels were counted at the east ladder on only 10 days in 2005. The estimated total extrapolated from the 10 days of counts is 2,932.

[d]A substantial proportion of these eels were released below the dam for tagging studies.

Table 8. Numbers of eels caught in electrofishing sweeps and mean number of eels captured per 100 m^2 in the Saint-Jean River, 1975-2000.

Year	Eels counted in Sweep				No. sites	Site areas (m^2)	Eels captured 100 m^{-2}
	1	2	3	NA[a]			
1975						~100	0.20
1976							
1977				1	20	50-150	0.05
1978				3	19	50-180	0.16
1979							
1980							
1981							
1982							
1983							
1984							
1985							
1986							
1987							
1988	1	0	0		12	105	0.08
1989	3	2	3		13	100	0.62
1990	2	0	0		12	100	0.17
1991	0	0	0		12	100	0.00
1992	2	1	0		12	100	0.25
1993							
1994							
1995							
1996							
1997							
1998							
1999							
2000				2	13	100	0.15

[a]Total catch; breakdown by sweep number not available

Table 9. Numbers of eels caught in electrofishing sweeps and mean number of eels captured per 100 m^2 in the Trinité River, 1984-1992.

Year	Closed stations						Open stations						All stations					
	Sweep			No. sites	Site areas (m^2)	Eels captured 100 m^{-2}	Sweep			No. sites	Site areas (m^2)	Eels captured 100 m^{-2}	Sweep			No. sites	Site areas (m^2)	Eels captured 100 m^{-2}
	1	2	3				1	2	3				1	2	3			
1984	0	0	1	14	100	0.07	0	2	0	53	100	0.04	0	2	1	67	100	0.04
1985	3	0	0	19	100	0.16	3	10	11	49	100	0.49	6	10	11	68	100	0.40
1986	0	0	0	11	100	0.00	4	5	10	46	100	0.41	4	5	10	57	100	0.33
1987	1	0	1	16	100	0.13	3	7	0	53	100	0.19	4	7	1	69	100	0.17
1988	1	0	0	11	100	0.09	3	6	3	53	100	0.23	4	6	3	64	100	0.20
1989	2	0	0	11	100	0.18	9	8	4	53	100	0.40	11	8	4	64	100	0.36
1990	0	0	0	11	100	0.00	6	3	4	52	100	0.25	6	3	4	63	100	0.21
1991	1	0	0	10	100	0.10	4	6	4	52	100	0.27	5	6	4	62	100	0.24
1992	0	0	0	4	100	0.00	2	4	0	28	100	0.21	2	4	0	32	100	0.19

Table 10. Numbers of eels caught in electrofishing sweeps and mean number of eels captured per 100 m^2 in the Bec-Scie River and its tributary Ruisseau Castor, Anticosti Island, 1985-1996.

Year	Bec-Scie							Ruisseau Castor							All sites						
	Eels counted in Sweep				No. sites	Site areas (m^2)	Eels captured 100 m^{-2}	Eels counted in Sweep				No. sites	Site areas (m^2)	Eels captured 100 m^{-2}	Eels counted in Sweep				No. sites	Site areas (m^2)	Eels captured 100 m^{-2}
	1	2	3	Not avail.[a]				1	2	3	Not avail.				1	2	3	Not avail.			
1985	17	0	0		6	96-110	2.73								17	0	0		6	96-110	2.73
1986																					
1987	25	0	0		5	91-108	4.02								25	0	0		5	91-108	4.02
1988				200	9	98-108	22.20				75	7	96-375	10.70				275	16	96-375	17.20
1989				143	9	98-108	15.90				25	7	96-150	3.60				168	16	96-150	10.50
1990	88	6			10	96-104	9.40	24	-	-		7	96-104	3.42	112	6	-		16	96-104	6.94
1991				137	9	96-105	15.20				19	7	96-105	2.70				156	16	96-105	9.80
1992				77	9	96-104	9.40				10	7	99-108	1.40				87	16	96-108	5.40
1993																					
1994				241	9	98-110	26.80				13	7	98-108	1.90				254	16	98-110	15.90
1995				95	9		10.60				15	7		2.10				110	16		6.90
1996				223	9		24.80				8	7		1.10				231	16		14.40

[a]Data files do not break down eel counts by sweep number.

Table 11. Indices of eel abundance from electrofishing surveys in Quebec, 1971-2004.

Year	Bonaventure		Cascapédia		Petite Cascapédia		Dartmouth		York		Grande Rivière		Grande Rivière Est		Grande Rivière Ouest		Petit Pabos		Grand Pabos Nord		Grand Pabos Ouest		Saint-Anne		Cap-Chat	
	N	Index[a]	N	Index	N	Index	N	Index	N	Index	N	Index	N	Index	N	Index	N	Index	N	Index	N	Index	N	Index	N	Index
1971																										
1972							n.d		n.d	0.3															n.d	0
1973																										
1974					n.d	0																	n.d	0	n.d	0
1975					n.d	0.2			n.d	0.1													n.d	0	n.d	0.2
1976					n.d	0.1	n.d		n.d	0.3													n.d	0	n.d	0.3
1977	n.d.[b]				n.d	0			n.d	0.1	n.d	0.9	n.d	0	n.d	1.5							n.d	0.1	n.d	0.8
1978			n.d.	0.2	n.d	0	n.d		n.d	0.1	n.d	0.4	n.d	0.2	n.d	1.1							n.d	0.1		
1979																										
1980																										
1981																							11	0.2	13	0
1982																							11	0.2	13	0.1
1983																							10	0.2	13	0.1
1984																							10	0.3	13	0.3
1985																							10	0.2	12	0.4
1986																							10	0.2	12	0.5
1987																							10	0.4	13	0.4
1988																							13	0.1	10	0.1
1989																									10	0
1990	25	0.00	17	0.06	32		10		12		5		4		5		9		8	0.00	14	0.00	13	0.15	10	0.31
1991	25	0.00	17	0.12	32				10	0.80	6		4	0.30	6	0.20	8		14	0.00	8	0.00			8	0.38
1992	25	0.04	17	0.06	32						20														6	0.00
1993	25	0.00	16		33						20	0.20													23	0.09
1994					33		4	0.5																		
1995																										
1996																										
1997																										
1998					64																					
1999	38	0.00							12	0.40							10		11	0.00						
2000	25	0.00	17		32		11	0.40	14								11		15	0.06	8	0.00	13	0.00	28	0.16
2001	25	0.00	17		33		11	0.09	14								10	0.10	11	0.10			13	0.00	23	0.05
2002																			15	0	13	0.1	7	0	11	0
2003																										
2004																										

[a] In most cases index means the number of fish caught in 3 sweeps, per 100 m^2 of surveyed area. However there may have been some variation in how the index was calculated.

[b] n.d. means no data.

Table 11 (continued)

Year	Madeleine		Sud-Ouest		Ouelle		Rimouski		Mitis		Matane		Petite Matane		Port-Daniel Nord		Port-Daniel du milieu		Petite rivière Port-Daniel		Causapscal		Humqui		Patapédia	
	N	Index	N	Index	N	Index	N	Index	N	Index	N	Index	N	Index	N	Index	N	Index	N	Index	N	Index	N	Index	N	Index
1971	n.d								n.d	0																
1972	n.d								n.d	0					n.d	0					n.d	-				
1973	n.d								n.d	0			n.d	0	n.d	2.3					n.d	0	n.d	8.6		
1974	n.d								n.d	0.2			n.d	0	n.d	0.3					n.d	0	n.d	2.1		
1975	n.d								n.d	0.4			n.d	0.2	n.d	0.4					n.d	0	n.d	2.3	n.d	0.3
1976	n.d								n.d	0.4			n.d	0.1	n.d	0	n.d	0			n.d	0.1	n.d	2.7	n.d	0
1977	n.d								n.d	0.7	n.d	0.3	n.d	0.1	n.d	0.4			n.d	1.1	n.d	0.1	n.d	1	n.d	0
1978	n.d								n.d	0.3			n.d	0							n.d	0.2	n.d	0.9	n.d	0
1979																										
1980																										
1981																										
1982	20	0	6	13			4	3.6																		
1983	20	0.1			10	0	4	5.9																		
1984					11	0.09	4	1.6																		
1985	20	0.3	6	8	11	0	4	1.3																		
1986	24	0.3			15	0	4	2.4																		
1987	24	0.2			15	0	4	0.4																		
1988	24	0			16	0																				
1989	22	0			16	0																				
1990					17	0.00	5	0.20																		
1991					17	0.00	5	1.70																		
1992					17	0.00																				
1993					17	0.00	5	1.20																		
1994							3	1.7																		
1995																										
1996																										
1997																										
1998							24	0.3																		
1999			6	10.00	17	0.00																				
2000	23	0.40	6	4.00	17	0.00																				
2001	21	0.10			17	0.00																				
2002	9	0			17	0																				
2003																										
2004					18	0																				

Table 12. Number of eels caught in research (Saint-Nicolas) and commercial (other) eel traps in the Quebec City area. Counts are for 1 September to early November unless otherwise indicated. Data from de Lafontaine et al. in press.

Survey year	Carrière	Anse Douville	Anse Gingras	Saint-Nicolas 15 May-31 Aug	Saint-Nicolas 1 Sep-31 Oct	Saint-Nicolas 15 May-31 Oct	Pont	North shore	Anse Verte	Saint-Romuald[a]	Landry	Saint-David	Lévis
1944										846	568		
1945										908	721		
1946										638	835		
1947													
1948													
1949													
1950													
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958													
1959													
1960													
1961													
1962													
1963													
1964							1,031						
1965			690				1,208					6,761	
1966			401				662	224					
1967			984				822						
1968			851		193		751		48				
1969			959				728						
1970			NotOp				NotOp	NotOp	NotOp				
1971	NotOp[b]	Op[c]	NotOp		414		NotOp	NotOp	NotOp				
1972	NotOp	Op	NotOp		297		NotOp	NotOp	NotOp				
1973	NotOp	Op	NotOp		225		NotOp	NotOp	NotOp	1,138			
1974	NotOp	Op	NotOp		209		NotOp	NotOp	NotOp	1,916			
1975	NotOp	Op	NotOp	115	232	347	NotOp	NotOp	NotOp	3,020			
1976	NotOp	Op	NotOp	246	194	440	NotOp	NotOp	NotOp	1,964			
1977	NotOp	1,711	NotOp	133	328	461	NotOp	NotOp	NotOp	2,379			
1978	NotOp	Op	NotOp	134	449	583	NotOp	NotOp	NotOp	4,232			
1979	NotOp	2,338	NotOp	128	273	401	NotOp	NotOp	NotOp	4,314			
1980	NotOp	1,226	NotOp	90	187	277	NotOp	NotOp	NotOp	2,294			
1981	NotOp	816	NotOp	143	176	319	NotOp	NotOp	NotOp	1,471			
1982	NotOp	1,082	NotOp	100	199	299	NotOp	NotOp	NotOp	2,864			
1983	NotOp	1,661	NotOp	115	234	349	NotOp	NotOp	NotOp	2,675			
1984	NotOp	Op	NotOp	147	166	313	NotOp	NotOp	NotOp	2,944			
1985	293	743	NotOp	129	200	329	NotOp	NotOp	NotOp	2,686			
1986	369	720	NotOp	136	176	312	NotOp	NotOp	NotOp	2,356			
1987	394	911	NotOp	83	166	249	NotOp	NotOp	NotOp	2,474			
1988	NotOp	1,196	NotOp	69	207	276	NotOp	NotOp	NotOp	2,109			1,040
1989	NotOp	482	NotOp	104	83	187	NotOp	NotOp	NotOp	796			423
1990	NotOp	819	NotOp	87	160	247	NotOp	NotOp	NotOp	1,359			787
1991	NotOp	600	NotOp	48	169	217	NotOp	NotOp	NotOp	891			945
1992	NotOp	708	NotOp	89	177	266	NotOp	NotOp	NotOp	1,566			1,369
1993	NotOp	986	NotOp	78	188	266	NotOp	NotOp	NotOp	1,276			702
1994	NotOp	971	NotOp	103	200	303	NotOp	NotOp	NotOp	1,683			1,291
1995	NotOp	814	NotOp	45	208	253	NotOp	NotOp	NotOp	1,860			1,196
1996	NotOp	341	NotOp	103	127	230	NotOp	NotOp	NotOp	1,622			894
1997	NotOp	528	NotOp	74	138	212	NotOp	NotOp	NotOp	1,571			1,221
1998	NotOp	536	NotOp	93	205	298	NotOp	NotOp	NotOp	1,962			1,175
1999	NotOp	Op	NotOp	69	381	450	NotOp	NotOp	NotOp	2,146			1,822
2000	NotOp	Op	NotOp	112	190	302	NotOp	NotOp	NotOp	1,872			998
2001	NotOp	Op	NotOp	67	350	417	NotOp	NotOp	NotOp				
2002	NotOp	491	NotOp	90	239	329	NotOp	NotOp	NotOp	1,524			639
2003	NotOp	282	NotOp	78	257	335	NotOp	NotOp	NotOp	1,168			651
2004	NotOp	364	NotOp	78	200	278	NotOp	NotOp	NotOp	878			200
2005	NotOp	410	NotOp	27	223	250	NotOp	NotOp	NotOp	975			399
2006	NotOp		NotOp				NotOp	NotOp	NotOp				

[a]The Saint-Romuald trap was set up differently in 1944-1946 than in 1973-2005; hence data for the two periods are not compatible.

[b]Trap not operating

[c]Trap operating but catch records are not available

Table 13. Catch and catch per unit effort of two eel fishers at Rivière-Ouelle on the St. Lawrence estuary. Each fisher fished from 1 to 3 traps.

Year	Fisher 1			Fisher 2			Mean CPUE	Mean CPUE, constant effort	Mean CPUE, decreasing effort
	Catch (kg)	Effort (m of net)	CPUE (kg eels/ m of net)	Catch (kg)	Effort (m of net)	CPUE (kg eels/ m of net)			
1985	4,841	601	8.06	1,547	230	6.73	7.39	7.39	
1986	10,560	601	17.57	2,171	230	9.44	13.51	13.51	
1987	7,139	601	11.88	1,873	230	8.14	10.01	10.01	
1988	7,467	601	12.42	2,240	230	9.74	11.08	11.08	
1989	6,852	601	11.40	1,543	230	6.71	9.05	9.05	
1990	8,691	601	14.46	2,095	230	9.11	11.78	11.78	
1991	6,860	601	11.41	1,781	230	7.74	9.58	9.58	
1992	4,156	601	6.92	877	230	3.81	5.36	5.36	
1993	5,892	601	9.80	1,474	230	6.41	8.11	8.11	
1994	5,347	601	8.90	1,584	230	6.89	7.89	7.89	
1995	4,405	601	7.33	948	230	4.12	5.73	5.73	
1996	3,325	601	5.53	794	230	3.45	4.49	4.49	
1997	2,886	601	4.80	918	230	3.99	4.40	4.40	
1998	3,854	601	6.41	1,374	171	8.04	7.22		7.22
1999	1,887	510	3.70	993	171	5.81	4.75		4.75
2000	2,750	367	7.49	705	171	4.12	5.81		5.81
2001	2,728	454	6.01	445	171	2.60	4.31		4.31
2002	2,935	402	7.30	502	122	4.11	5.71		5.71
2003	1,859	448	4.15	292	168	1.74	2.94		2.94
2004	4,029	402	10.02	666	122	5.46	7.74		7.74

Table 14. Catch and catch per unit effort in the commercial eel fishery in the St. Lawrence estuary. Data for 1979-1995 are from Axelsen 1997. Data for 1996-2001 are from Verreault et al. 2003. Data for 1996-2001 are from index fishers, hence catch and effort for that period do not reflect total catch and total effort of all fishers.

Year	Kamouraska County			District 10		District 11		District 18		District 15		Upper Estuary total		St. Lawrence estuary CPUE (kg eels/m of net)		
	Catch (kg)	Effort (m of net)	CPUE (kg eels/ m of net)	Catch (kg)	CPUE (kg eels/ m of net)	Catch (kg)	CPUE (kg eels/ m of net)	Catch (kg)	CPUE (kg eels/ m of net)	Catch (kg)	CPUE (kg eels/ m of net)	Catch (kg)	CPUE (kg eels/ m of net)	Sector 1 (upstream)	Sector 2 (middle)	Sector 3 (downstream)
1979	243,368	29,502	8.25													
1980	297,350	29,489	10.08													
1981	313,160	31,266	10.02													
1982	148,870	8,204	18.15													
1983	219,491	18,073	12.14													
1984	229,600	29,987	7.66													
1985	216,388	29,155	7.42													
1986	247,885	36,511	6.79	27,630	6.42	235,188	7.05	79,644	4.07	4,393	1.31	346,855	5.65			
1987	208,197	37,087	5.61	29,723	6.87	192,031	5.79	85,364	4.11	3,749	1.12	310,867	5.00			
1988	203,007	36,759	5.52	42,987	8.75	211,559	6.57	70,017	3.39	5,443	1.24	330,006	5.31			
1989	213,325	37,969	5.62	22,956	4.39	213,113	6.06	67,258	3.05	2,165	0.61	305,492	4.52			
1990	258,131	36,589	7.05	25,720	4.48	235,766	7.51	65,517	2.89	3,455	0.66	330,458	5.09			
1991	220,210	37,730	5.84	25,839	4.42	199,141	6.15	58,573	2.66	3,122	0.78	286,675	4.47			
1992	141,676	37,511	3.78	35,428	6.11	131,679	3.98	47,590	2.21	1,944	0.45	216,641	3.34			
1993	168,572	38,664	4.36	27,160	4.71	148,397	4.80	54,591	2.14	857	0.22	231,005	3.62			
1994	118,567	33,246	3.57	30,515		111,998		34,846		2,053		179,412				
1995	97,094	30,932	3.14	41,219		109,980		30,523		995		182,717				
1996	105,629	26,674	3.96											3.97	3.96	1.41
1997	90,811	26,553	3.42											3.95	3.05	2.64
1998	116,170	24,717	4.70											5.25	4.28	2.21
1999	90,847	20,694	4.39											4.73	4.16	2.69
2000	61,337	17,038	3.60											4.54	3.09	2.91
2001	58,363	16,394	3.56													

Table 15. Catch, catch per unit effort, length, and weight of eels captured on the North Shore of the Gulf of St. Lawrence. Data from Lemire et al. (1978) and Pilote (1989) for 1978, and from Pilote (1989) for other years.

Year	Site	Location	Hab.[a]	Coordinates[b]	Region[c]	Gear	Eels caught	Effort (h)	CPUE (eels/100 h)	CPUE (eels/d)	CPUE (kg/100 h)	CPUE (kg/d)	Length (cm) Mean	SD	N	Weight (g) Mean	SD	N
1978	1	Lac à l'eau La Tabatière	F	50°49'48"N, 58°57'46"W	LNS	Fyke	108											
1978	2	Lac X La Tabatière[d]	F	50°49'54"N, 58°57'57"W	LNS	Fyke	181	2,983	9.725	2.334	2.08	0.499	45.6	8.0	289			
1978	3	Baie de la Tabatière (Usine)	BR	50°50'13"N, 58°58'19"W	LNS	Fyke	5	1,394	0.359	0.086	0.08	0.019	54.0	1.4	5			
1978	4	Seal Cove	BR	50°52'29"N, 58°57'34"W	LNS	Fyke	5	1,057	0.474	0.114	0.11	0.026	41.6	9.4	5			
1978	5	Seal Cove	BR	50°52'27"N, 58°57'28"W	LNS	Fyke	0	1,056	0.000	0.000	0.00	0.000						
1978	6	Seal Cove	BR	50°52'27"N, 58°57'28"W	LNS	Fyke	0	1,056	0.000	0.000	0.00	0.000						
1978	7	Lac Salé	MS	50°53'20"N, 58°58'53"W	LNS	Fyke	125	2,672	4.678	1.123	1.00	0.240	50.7	8.3	125			
1978	8	Lac Salé	MS	50°53'24"N, 58°58'51"W	LNS	Fyke	388	2,683	14.467	3.472	3.10	0.744	48.9	10.1	388			
1978	9	Lac Salé	MS	50°53'25"N, 58°58'57"W	LNS	Fyke	487	2,753	17.690	4.246	3.79	0.910	47.1	8.6	487			
1978	10	Lac Salé	MS	50°53'29"N, 58°58'55"W	LNS	Fyke	480	2,754	17.429	4.183	3.73	0.895	48.5	9.3	480			
1978	11	Baie des Moutons	BR	50°47'04"N, 59°02'56"W	LNS	Fyke	2	1,366	0.146	0.035	0.03	0.007						
1978	12	Baie des Moutons	BR	50°47'05"N, 59°02'42"W	LNS	Fyke	12	1,368	0.878	0.211	0.19	0.046	50.0	10.9	12			
1978	13	Rivière Mécatina	MS	50°48'56"N, 59°06'11"W	LNS	Fyke	55	354	15.537	3.729	3.32	0.797	59.1	10.7	55			
1978	14	Rivière Mécatina	MS	50°47'01"N, 59°05'47"W	LNS	Fyke	6	549	1.095	0.263	0.23	0.055	47.0	7.4	6			
1978		Schooner Cove	BR	50°48'06"N, 59°59'04"W	LNS	Fyke	0	528	0.000	0.000	0.00	0.000						
1978		Sum/mean	F		LNS	Fyke	289	2,983	9.688	2.325	2.08	0.499						
1978		Sum/mean	BR		LNS	Fyke	24	7,825	0.307	0.074	0.06	0.014						
1978		Sum/mean	MS		LNS	Fyke	1,541	11,765	13.098	3.144	2.53	0.607						
1978		Sum/mean			LNS	Fyke	1,854	22,573	8.213	1.971	1.36	0.326						
1979	1	Havre aux Poissons		50°53'36"N, 58°58'10"W	LNS	Fyke	167	2,039	8.194	1.967	1.75	0.420	50.0	8.6	167	247.0	145.2	167
1979	2	Havre aux Poissons		50°53'36"N, 58°58'10"W	LNS	Fyke	105	2,041	5.145	1.235	1.10	0.264	50.5	8.5	105	255.7	148.6	105
1979	3	Havre aux Poissons		50°53'36"N, 58°58'10"W	LNS	Fyke	64	2,062	3.104	0.745	0.66	0.158	50.7	7.9	64	262.5	145.4	64
1979	4	Havre aux Poissons		50°53'36"N, 58°58'10"W	LNS	Fyke	173	2,040	8.480	2.035	1.81	0.434	51.1	8.6	173	268.9	160.5	173
1979	5	Baie de la Terre		50°55'31"N, 58°57'59"W	LNS	Fyke	18	718	2.507	0.602	0.54	0.130	46.9	7.6	18	185.0	75.1	18
1979	6	Anse à Bastien		50°56'42"N, 58°58'50"W	LNS	Fyke	0	508	0.000	0.000	0.00	0.000						
1979	7	Anse à Bastien		50°56'42"N, 58°58'50"W	LNS	Fyke	14	718	1.950	0.468	0.42	0.101	44.1	5.5	14	145.7	63.2	14
1979	8	Lac Monger		50°58'57"N, 59°01'52"W	LNS	Fyke	6	331	1.813	0.435	0.39	0.094	42.2	2.2	6	125.0	29.5	6
1979	9	Salt Water		[e]	LNS	Fyke	76	1,080	7.044	1.691	1.51	0.362	47.4	7.2	76	203.3	121.9	76
1979	10	Lac Monger		50°58'57"N, 59°01'52"W	LNS	Fyke	28	667	4.204	1.009	0.90	0.216	46.8	4.9	28	186.4	66.0	28
1979	11	Rivière des Ha Ha		50°59'53"N, 59°02'39"W	LNS	Fyke	102	1,259	8.102	1.944	1.73	0.415	48.0	7.4	102	214.1	102.1	102
1979	12	Rivière des Ha Ha		50°59'53"N, 59°02'39"W	LNS	Fyke	6	500	1.200	0.288	0.26	0.062	48.4	5.0	6	210.0	70.4	6
1979	13	La Tabatière		50°49'42"N, 58°57'51"W	LNS	Fyke	32	603	5.307	1.274	1.13	0.271	54.9	8.5	24	316.3	154.2	24
1979	14	Rivière Mécatina		50°46'06"N, 59°05'36"W	LNS	Fyke	139	1,111	12.523	3.006	2.68	0.643	54.0	9.7	139	334.5	211.1	139
1979	15	Lac Pommereau		50°47'13"N, 59°09'20"W	LNS	Fyke	472	1,797	26.266	6.304	5.62	1.349	48.4	8.5	453	222.4	133.0	453
1979	16	Lac Pommereau		50°47'13"N, 59°09'20"W	LNS	Fyke	2,480	1,802	137.701	33.048	29.47	7.073	45.6	8.5	2,480	182.1	119.5	2,480
1979	17	Baie de la Terre		50°55'31"N, 58°57'59"W	LNS	Fyke	3	818	0.367	0.088	0.08	0.019						
1979	18	Petite Rivière			LNS	Fyke	30	1,155	2.597	0.623	0.56	0.134	46.6	7.2	30	184.0	93.8	30
1979	19	Rivière Kécarpoui		51°03'43"N, 58°49'58"W	LNS	Fyke	1	453	0.221	0.053	0.05	0.012						
1979	20	Rivière Kécarpoui		51°03'43"N, 58°49'58"W	LNS	Fyke	187	1,032	18.138	4.353	3.89	0.934	44.5	7.2	187	159.1	94.3	187
1979	21	Lac Thibeault		51°03'15"N, 58°52'14"W	LNS	Fyke	2	405	0.495	0.119	0.11	0.026						
1979	22	Baie Lessard		[f]	LNS	Fyke	185	1,583	11.687	2.805	2.50	0.600	54.3	7.9	185	289.6	142.3	185
1979	23	Lac Pommereau		50°47'13"N, 59°09'20"W	LNS	Fyke	456	1,292	35.294	8.471	7.55	1.812	47.8	8.0	418	211.4	115.3	418
1979	24	Rivière Mécatina		50°46'06"N, 59°05'36"W	LNS	Fyke	368	456	80.702	19.368	17.27	4.145	54.0	10.6	309	331.4	238.4	309
1979	25	Rivière Kécarpoui		51°03'43"N, 58°49'58"W	LNS	Fyke	21	722	2.913	0.699	0.62	0.149	43.0	7.8	21	154.3	97.8	21
1979	26	Rivière Kécarpoui		51°03'43"N, 58°49'58"W	LNS	Fyke	5	722	0.694	0.167	0.16	0.038	51.6	9.9	5	300.1	171.0	5
1979	27	Lac Pommereau		50°47'13"N, 59°09'20"W	LNS	Fyke	1	336	0.298	0.072	0.06	0.014						
1979	28	Havre aux Poissons		50°53'36"N, 58°58'10"W	LNS	Fyke	1	120	0.833	0.200	0.18	0.043						
1979		Sum/mean			LNS	Fyke	5,142	28,370	18.125	4.350	2.96	0.711						
1978-1979		Sum/mean			LNS	Fyke	6,996	50,943	13.733	3.296	2.46	0.589						

Table 15 (continued)

Year	Site	Location	Hab.[a]	Coordinates[b]	Region[c]	Gear	Eels caught	Effort (h)	CPUE (eels/100 h)	CPUE (eels/d)	CPUE (kg/100 h)	CPUE (kg/d)	Length (cm) Mean	SD	N	Weight (g) Mean	SD	N
1981	1	Rivière Noire		48°40'57"N, 69°16'51"W	UNS		0		≤9.8	≤2.4								
1981	2	Rivière des Petits Escoumins		48°26'04"N, 69°18'58"W	UNS		31		≤9.8	≤2.4								
1981	3	Rivière P. Romaine		48°28'48"N, 69°16'57"W	UNS		33		≤9.8	≤2.4								
1981	4	Rivière du Sault au Mouton		48°32'20"N, 69°15'07"W	UNS		149		≤9.8	≤2.4								
1981	5	Rivière Laval		48°46'24"N, 69°03'02"W	UNS	Fyke	180		129.2[g]	31.0[g]								
1981	6	Rivière Franklin					0		≤9.8	≤2.4								
1981	7	Petite rivière du Calumet		49°36'59"N, 67°12'53"W	MNS		4		≤9.8	≤2.4								
1981	8	Rivière Pentecôte		49°46'48"N, 67°09'49"W	MNS	Fyke	7		14.000	3.4								
1981	9	Rivière Riverin		49°47'08"N, 67°09'20"W	MNS		3		≤9.8	≤2.4								
1981	10	Rivière Brochu		50°06'25"N, 66°41'56"W	MNS	Fyke	238		397.8[g]	95.5[g]								
1981	11	Rivière Ste.-Marguerite		50°08'34"N, 66°35'45"W	MNS		93		≤9.8	≤2.4								
1981	12	Rivière Rapide		51°07'51"N, 64°16'39"W	MNS		11		≤9.8	≤2.4								
1981	13	Rivière au Foin		50°15'45"N, 66°24'26"W	MNS	Fyke	38		34.7[g]	8.3[g]								
1981	14	Rivière du Sault Plat		50°16'59"N, 65°27'00"W	MNS		10		≤9.8	≤2.4								
1981	15	Rivière aux Graines		50°16'59"N, 65°10'59"W	MNS		0		≤9.8	≤2.4								
1981	16	Rivière Cove					0		≤9.8	≤2.4								
1981	17	Rivière Sheldrake		50°16'0"N, 64°55'0"W	MNS		1		≤9.8	≤2.4								
1981	18	Rivière Couture		50°16'0"N, 64°52'59"W	MNS		10		≤9.8	≤2.4								
1981	19	Rivière Moyac		50°15'58"N, 64°50'1"W	MNS		14		≤9.8	≤2.4								
1981	20	Rivière Duck		50°16'26"N, 64°47'34"W	MNS		87		10.2[g]	2.5[g]								
1981	21	Rivière au Tonnerre		50°16'0"N, 64°46'59"W	MNS		7		≤9.8	≤2.4								
1981	22	Rivière Beline		50°18'43"N, 64°29'31"W	MNS		0		≤9.8	≤2.4								
1981	23	Rivière Saint Coeur		50°16'59"N, 64°19'59"W	MNS		1		≤9.8	≤2.4								
1981	24	Rivière St.-Jean		50°16'59"N, 64°19'59"W	MNS		6		≤9.8	≤2.4								
1981	25	Rivière P. Manitou		50°41'59"N, 65°10'00"W	MNS		18		≤9.8	≤2.4								
1981	26	Rivière Lechasseur		50°17'59"N, 63°49'59"W	MNS		3		≤9.8	≤2.4								
1981	27	Rivière Aisley		50°17'59"N, 63°46'59"W	MNS		0		≤9.8	≤2.4								
1981	28	Rivière P. Rivière					4		≤9.8	≤2.4								
1981	29	Ruisseau Sans Nom					20		≤9.8	≤2.4								
1984	1	Rivière Laval		48°46'24"N, 69°03'02"W	UNS	Fyke	54	216	25.000	6.000	11.37	2.729	58.9	11.2	54	765.0	185.7	4
1984	2	Rivière aux Pins		48°47'55"N, 69°02'52"W	UNS	Fyke	23	379	6.069	1.457	2.76	0.662	61.0	16.6	23	600.0	515.9	23
1984	3	Rivière Laval		48°46'24"N, 69°03'02"W	UNS	Fyke	868	3,325	26.105	6.265	11.88	2.851	62.1	13.6	311	593.0	409.7	356
1984	4	Baie de la riv. Laval			UNS	Fixed fishery	174	3,290	5.289	1.269	2.41	0.578	67.0	7.9	168	693.2	268.4	37
1984	5	Rivière Blanche		48°49'09"N, 68°55'31"W	UNS	Fyke, fish trap	106	382	27.822	6.677	12.66	3.038	45.8	14.0	106	251.2	183.2	99
1984	6	Ruisseau Jean-Raymond		48°46'00"N, 69°04'00"W	UNS	E-fishing	0	0	0.000	0.000	0.00	0.000						
1984	7	Rivière aux Pins		48°47'55"N, 69°02'52"W	UNS	Fyke	1,304	1,243	104.908	25.178	47.73	11.455	59.0	10.1	678	426.9	222.9	1,165
1984	8	Rivière Laval		48°46'24"N, 69°03'02"W	UNS	fish trap	6	292	2.055	0.493	0.94	0.226	57.0	7.9	6	420.0	236.2	6
1984	9	Baie de la riv. Laval			UNS	fish trap	0	115	0.000	0.000	0.00	0.000						
1984	10	Rivière Colombier		48°49'23"N, 68°54'04"W	UNS	Fyke, fish trap	15	1,080	1.389	0.333	0.63	0.151	59.7	16.1	15	496.0	449.3	15
1984	11	Rivière Laval		48°46'24"N, 69°03'02"W	UNS	fish trap	0	152	0.000	0.000	0.00	0.000						
1984	12	Rivière aux Pins		48°47'55"N, 69°02'52"W	UNS	fish trap	12	443	2.709	0.650	1.23	0.295	53.5	8.2	12	310.0	161.9	12
1984	13	Rivière Colombier		48°49'23"N, 68°54'04"W	UNS	E-fishing	0	0	0.000	0.000	0.00	0.000						
1984	14	Rivière Laval		48°46'24"N, 69°03'02"W	UNS	fish trap	18	453	3.974	0.954	1.81	0.434	53.9	6.8	18	316.7	102.2	18
1984	15	Rivière Colombier		48°49'23"N, 68°54'04"W	UNS	E-fishing	1	0	1.000	0.240	0.45	0.108						
1984	16	Rivière Colombier		48°49'23"N, 68°54'04"W	UNS	E-fishing	11						29.3	14.1	11	120.0	68.4	6
1984	17	Rivière aux Pins		48°47'55"N, 69°02'52"W	UNS	fish trap	0	100	0.000	0.000	0.00	0.000						
1984	18	Rivière aux Pins		48°47'55"N, 69°02'52"W	UNS	E-fishing	9						28.9	10.1	9	63.3	31.6	9
1984		Sum/mean			UNS	Fyke	2,249	5,163	43.560	10.454	18.44	4.424						

Table 15 (continued)

Year	Site	Location	Hab.[a]	Coordinates[b]	Region[c]	Gear	Eels caught	Effort (h)	CPUE (eels/100 h)	CPUE (eels/d)	CPUE (kg/100 h)	CPUE (kg/d)	Length (cm) Mean	SD	N	Weight (g) Mean	SD	N
1985	19	Marina de Sept-Îles		50°11'59"N, 66°22'59"W	MNS	Pot	24	784	3.065	0.736	1.03	0.247	52.8	12.5	24	373.8	240.8	24
1985	20	Rivière du Vieux Fort		[h]	MNS	Pot	12	707	1.697	0.407	0.57	0.137	44.7	11.2	12	210.0	143.0	12
1985	21	Rivière au Foin		50°15'45"N, 66°24'26"W	MNS	Pot	142	3,094	4.590	1.102	1.54	0.370	47.5	13.1	142	280.6	238.0	142
1985	22	Rivière Rapide		[h]	MNS	Pot, fyke	1,334	2,500	53.381	12.811	17.88	4.291	52.4	11.2	1,273	309.8	217.8	1,274
1985	23	Rivière Rapide		[h]	MNS	Pot	58	1,107	5.239	1.257	1.76	0.422	44.0	9.9	58	186.7	144.8	58
1985	24	Rivière Hall		50°12'38"N, 66°32'29"W	MNS	Pot	233	1,625	14.338	3.441	4.80	1.152	55.0	6.2	228	320.4	105.7	228
1985	25	Rivière Ste.-Marguerite		50°08'34"N, 66°35'45"W	MNS	Pot	27	5,835	0.463	0.111	0.16	0.038	54.2	13.2	27	330.0	267.7	27
1985	26	Rivière Ste.-Marguerite		50°08'34"N, 66°35'45"W	MNS	Pot	5	196	2.551	0.612	0.85	0.204	49.6	12.2	5	276.0	176.7	5
1985	27	Rivière Brochu		50°06'25"N, 66°41'56"W	MNS	Pot	4	2,088	0.192	0.046	0.06	0.014	54.0	10.4	3	310.0	141.8	3
1985	28	Rivière Dominique		50°01'35"N, 66°52'02"W	MNS	Pot, fyke	74	1,771	4.181	1.003	1.40	0.336	72.3	11.6	73	784.9	400.9	73
1985	29	Rivière aux Rochers		50°01'10"N, 66°52'04"W	MNS	Pot	4	3,180	0.126	0.030	0.04	0.010	46.5	3.5	4	187.5	45.0	4
1985	30	Rivière aux Rochers		50°01'10"N, 66°52'04"W	MNS	Pot	0	671	0.000	0.000	0.00	0.000						
1985	31	Rivière Vachon		49°57'22"N, 66°58'17"W	MNS	Pot	8	1,248	0.641	0.154	0.21	0.050	89.6	7.5	8	1,233.7	281.2	8
1985	32	Rivière des Îles de Mai		49°55'39"N, 66°58'51"W	MNS	Pot	1	864	0.116	0.028	0.04	0.010						
1985	33	Rivière Riverin		49°47'08"N, 67°09'20"W	MNS	Pot, fyke	68	1,269	5.363	1.287	1.80	0.432	64.8	11.5	68	578.5	300.9	68
1985	34	Rivière Pentcôte		49°46'48"N, 67°09'49"W	MNS	Pot	26	960	2.708	0.650	0.91	0.218	46.9	12.2	26	245.8	190.3	26
1985		Sum/mean			MNS	Pot	544	22,359	2.433	0.584	0.92	0.221						

[a]Habitat: F-fresh water, BR-bay with rocky bottom, MS-river mouth with sandy bottom.

[b]Coordinates for 1978 are from Google Earth, based on detailed site maps in Lemire et al. 1978. Coordinates for other years were obtained by looking up the site names given by Pilote 1989 in the online National Atlas of Canada (www.atlas.nrcan.gc.ca). These coordinates do not necessarily correspond with exact sampling locations. A blank cell means that the site could not be identified in the National Atlas.

[c]UNS - Upper North Shore, MNS - Middle North Shore, LNS - Lower North Shore.

[d]Effort, CPUE, and length data are for Sites 1 and 2 combined.

[e]The National Atlas lists Baie Salt Water at 51°05'22"N, 58°36',26"W and Étang Salt Water at 50°58'13"N, 59°02'48"W.

[f]The National Atlas lists Baie Louis-Lessard at 51°05'21"N, 58°47'45"W.

[g]CPUE is given for fishing between 3 and 14 August. CPUE for other fishing periods (18-24 June, 22 Septempber-2 October) was ≤2.2 eels/100 h.

[h]Unable to reliably locate this site.

Table 16. Age frequency distributions of American eels in Quebec. Eels are considered to be age 0 in their year of arrival in continental waters.

System/ region	St. Lawrence R.	St. Lawrence R.	St. Law. estuary	St. Law. estuary	St. Law. estuary	St. Law. estuary	St. Law. estuary	St. Law. estuary	St. Law. estuary	Gulf N. Shore	Gulf N. Shore	Gulf N. Shore	Gulf N. Shore
Site	Beauharnois Dam	Beauharnois Dam	Various	Kamour-aska	R. Verte	Trois-Pistoles	R. Sud-ouest	Verte, Trois-Pistoles, Sud-ouest	Sud-ouest R.	Petite r. de la Trinité	Petite r. de la Trinité	Petite r. de la Trinité	Petite r. de la Trinité
Coordinates					48°00.44'N 69°20.75'W	48°05.73'N 69°12.79'W	48°21.12'N 68°45.68'W						
Habitat	River	River	Estuary	Estuary	River	River	River	River	River	Lake	River	River	River
Stage	Ascending juveniles	Ascending juveniles	Silver	Silver	Yellow	Yellow	Yellow	Yellow	Silver	Yellow	Yellow, mig. upstream	Silver	Silver
Year	2004	2006	1970	2001	2006	2006	2006	2006	2001	2000-2001	1999-2001	1999-2001	2001
Gear	Ladder trap	Ladder trap	Trap	Fixed trap	E-fishing	E-fishing	E-fishing	E-fishing	Counting fence				Alaska trap
Exploited	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No
Size sampled	Stratified[a]	All	All	All	All	All	All	All	All	All	All	All	All
Source	Verreault and Tardif 2006	K. Oliveira unpubl.	Larouche et al. 1974	Tremblay 2004, unpubl.	K. Oliveira unpubl.	K. Oliveira unpubl.	K. Oliveira unpubl.	K. Oliveira unpubl.	Tremblay 2004, unpubl.	Caron et al. unpubl.	Caron et al. unpubl.	Fournier & Caron 2001, 2005	Tremblay 2004, unpubl.
Length (cm)													
Mean	35.1	34.2	79.2	83.7	21.1	36.9	29.9	30.3	104.3			64.2	67.9
SD	7.1	6.2		6.9	15.2	16.9	5.8	12.4	6.7				11.9
N	984	20	3,841	30	5	8	15	28	30			1,280	30
Age (years)													
Mean	6.3	6.1	16.8	20.1	4.0	6.6	5.9	5.8	22.6	10.8	6.8	19.2	20.0
SD	2.2	1.8	2.9	3.8	2.0	4.3	1.6	2.8	4.7	6.6	4.3	4.0	3.6
N	82[a]	20	2,931	30	5	8	15	28	30	45	133	74	30
0													
1					1	1		2			8		
2	0.2						1	1		6	17		
3	1.5				1			1		4	18		
4	19.0	4				2		2			9		
5	18.2	6			2	1	5	8		2	7		
6	19.4	3			1	1	4	6		2	11		
7	27.3	3	2			1	3	4		2	9		
8	2.4	1	4				1	1		1	10		
9	5.3	2	5				1	1		2	6		
10	3.9	1	20							2	4		
11	2.7[b]		41						1	3	6	1	
12			87			1		1		3	7	1	
13			168						1	2	11	4	
14			264	2		1		1		2	5	1	2
15			358	3						3	2	6	1
16			475	2						3	3	5	1
17			409	1					1	2		7	5
18			358	1					2	1		7	3
19			189	2						2		9	3
20			199	4					7			5	3
21			152	7						1		5	1
22			106	2					3			7	3
23			58	1					1			2	2
24			30	1					6			7	2
25			6	1						1		4	2
26				1					1			1	1
27				1					1			1	1
28									3	1			
29				1					2				
30												1	
31													
32									1				

Table 16 (continued)

System/ region	Gulf N. Shore	Gulf N. Shore	Gaspé Pen.	Gaspé Pen.	Gaspé Pen.
Site	Matamek R., Bill Lake	Ruisseau Sylvie	Saint-Jean	Saint-Jean	Saint-Jean
Coordinates					
Habitat	Lake	Estuary	River	Lake	Estuary
Stage			Yellow, mostly mig. downstream	Yellow	Yellow
Year	1970	1973	2004	2004	2004
Gear	Fyke	Rotenone			
Exploited	No	No	No	No	No
Size sampled	All	All	All	All	All
Source	O'Connor & Power 1973	Dolan 1975	Caron & Thibault unpubl.	Caron & Thibault unpubl.	Caron & Thibault unpubl.
Length (cm)					
Mean					
SD					
N					
Age (years)					
Mean	10.6	2.2	8.7	11.2	7.4
SD	2.3	2.7	3.8	4.3	2.2
N	19	69	78	36	48
0		23			
1		16			
2		5			
3		12	1		
4			7		7
5		2	6		5
6		2	10	5	5
7		1	5	6	3
8	2	2	13		17
9	7	3	6	4	2
10	3	1	13	2	4
11	1	1	8	4	5
12	2	1	3	3	
13	2		1	1	
14			1	2	
15	1			2	
16	1		1	3	
17				1	
18			1		
19					
20				3	
21					
22					
23					
24			2		
25					
26					
27					
28					
29					
30					
31					
32					

[a]82 otoliths aged from a length-stratified sample were used to create an age-length key, which was applied to lengths of 984 randomly sampled eels. Data are presented as percent age distribution estimated for the random sample.

[b]refers to age 11 and older

Table 17. Reported landings (tonnes) of American eels in the southern Gulf of St. Lawrence, by province. Data for 2006 are preliminary.

Year	New Brunswick	Nova Scotia	Prince Edward Island	Total
1917	51.0	12.6	0.0	63.6
1918	61.8	13.1	0.0	74.9
1919	75.1	6.3	0.0	81.4
1920	24.2	10.7	0.0	34.9
1921	40.7	14.8	0.0	55.5
1922	14.0	7.5	0.0	21.5
1923	10.2	0.7	0.0	10.9
1924	10.0	7.5	0.0	17.5
1925	18.4	4.3	0.0	22.7
1926	5.4	5.7	0.0	11.1
1927	1.4	3.5	0.0	4.9
1928	16.3	6.6	0.0	22.9
1929	5.2	4.5	0.0	9.7
1930	11.8	15.2	0.0	27.0
1931	18.8	11.9	0.0	30.7
1932	9.1	13.8	0.0	22.9
1933	11.0	16.7	0.0	27.7
1934	11.3	5.8	0.0	17.1
1935	7.6	5.2	0.0	12.8
1936	4.4	4.1	0.0	8.5
1937	5.7	4.2	0.0	9.9
1938	9.4	9.7	0.0	19.1
1939	11.0	8.7	0.0	19.7
1940	4.8	10.6	0.0	15.4
1941	3.6	3.4	0.0	7.0
1942	12.5	4.8	0.0	17.3
1943	14.1	5.0	0.0	19.1
1944	13.9	6.9	0.0	20.8
1945	14.5	10.7	0.0	25.2
1946	29.1	16.7	0.0	45.8
1947	31.8	13.6	0.9	46.3
1948	29.0	8.7	10.0	47.7
1949	29.4	37.6	3.6	70.6
1950	22.2	23.6	2.3	48.1
1951	15.5	20.9	3.6	40.0
1952	15.8	11.9	5.0	32.7
1953	13.1	7.7	6.3	27.1
1954	33.1	6.4	3.7	43.2
1955	48.6	10.5	9.1	68.2
1956	10.5	14.6	4.6	29.7
1957	8.6	10.1	12.3	31.0
1958	14.5	14.1	18.7	47.3
1959	23.6	11.4	26.4	61.4
1960	30.9	23.6	31.9	86.4
1961	57.4	27.8	17.7	102.9
1962	81.9	26.4	13.1	121.4
1963	53.7	23.6	15.9	93.2
1964	56.4	18.8	34.2	109.4
1965	62.6	16.3	48.6	127.5
1966	99.2	15.0	32.8	147.0
1967	108.0	52.3	61.8	222.1
1968	150.6	28.3	130.7	309.6
1969	214.2	38.1	194.5	446.8
1970	294.7	45.4	239.9	580.0
1971	319.4	52.1	351.4	722.9
1972	272.8	50.3	272.8	595.9
1973	220.4	28.0	157.2	405.6
1974	156.2	28.3	101.2	285.7
1975	120.8	28.6	103.5	252.9
1976	118.7	18.0	94.1	230.8
1977	110.1	5.9	97.6	213.6
1978	81.6	12.3	113.6	207.5
1979	102.4	12.6	111.0	226.0
1980	150.4	9.5	120.1	280.0
1981	191.2	7.5	220.0	418.7
1982	159.2	11.3	167.6	338.1
1983	97.4	9.6	150.5	257.5
1984	122.4	8.9	164.6	295.9
1985	202.4	5.1	139.4	346.9
1986	230.2	15.6	226.0	471.8
1987	171.6	13.2	149.9	334.7
1988	233.5	24.7	124.7	382.9
1989	209.0	30.2	69.5	308.7
1990	149.3	20.8	123.8	293.9
1991	130.2	34.8	126.6	291.6
1992	119.6	56.0	54.0	229.6
1993	88.3	89.2	74.0	251.5
1994	68.1	42.3	45.8	156.2
1995	60.2	16.3	34.6	111.0
1996	48.7	11.4	36.0	96.1
1997	36.4	17.2	31.3	84.9
1998	49.2	15.0	23.6	87.8
1999	47.2	9.0	35.3	91.5
2000	76.4	6.9	63.5	146.7
2001	92.2	3.4	41.2	136.8
2002	129.0	4.2	86.4	219.6
2003	139.6	9.1	71.3	219.9
2004	123.1	4.4	69.0	196.5
2005	102.2	7.0	81.5	190.7
2006	95.0	9.9	68.7	173.7

Table 18. Catch rates of legal and sublegal eels in fyke nets on Prince Edward Island, as reported by logbook fishers. Adjusted catch rates are adjusted to a minimum size of 53.0 cm.

Year	Number of log-keepers	Number of fishing sites	Number of net-days	Minimum legal size (cm)	Legal eels				Sublegal eels			
					Catch (kg)	Adjustment factor[a]	kg caught/net-day		Catch (no. of eels)	Adjustment factor[b]	No. eels caught/net-day	
							Unadjusted	Adjusted			Unadjusted	Adjusted
1996	7	18	9,996	46.0	3,768	0.774	0.377	0.292	7,230	1.440	0.723	1.042
1997	7	15	10,513	46.0	3,589	0.774	0.341	0.264	15,174	1.440	1.443	2.078
1998	5	12	6,985	50.8	3,542	0.923	0.517	0.477	17,567	1.086	2.515	2.731
1999	4	11	9,019	50.8	8,327	0.923	0.923	0.852	36,450	1.086	4.041	4.389
2000	3	10	6,192	50.8	5,646	0.923	0.912	0.842	12,240	1.086	1.977	2.147
2001	6	14	8,497	50.8	5,436	0.923	0.640	0.590	9,731	1.086	1.145	1.244
2002	6	16	9,852	50.8	7,554	0.923	0.767	0.708	13,152	1.086	1.434	1.557
2003	7	17	9,792	50.8	8,526	0.923	0.871	0.804	15,918	1.086	1.626	1.765
2004	5	12	7,832	50.8	9,026	0.923	1.153	1.064	15,977	1.086	2.059	2.236
2005	4	11	7,941	53.0	7,507	1.000	0.945	0.945	15,844	1.000	1.995	1.995
2006	3	9	5,728	53.0	4,714	1.000	0.823	0.823	7,399	1.000	1.292	1.292
2007	9	20	13,693	53.0	18,721	1.000	1.367	1.367	42,891	1.000	3.132	3.132

[a]Based on measurements and weights of 1,249 commercially caught eels on PEI, 1997-2002. Summed weight of eels between 50.9 cm and 52.9 cm was 7.7% of the summed weight of eels that were >= 50.8 cm. Summed weight of eels between 46.0 cm and 52.9 cm was 22.6% of the summed weight of eels that were >= 46.0 cm.

[b]Based on measurements of 2,748 commercially caught eels on PEI, 1997-2002. Number of eels between 50.9 cm and 52.9 cm was 8.6% of the number of eels that were under 50.8 cm. Number of eels between 46.0 cm and 52.9 cm was 44.0% of the number of eels that were under 46.0 cm.

Table 19. Mean catch rates of eels in research and commercial fishing in the southern Gulf of St. Lawrence.

Region	Fishery[a]	Years	Gear	Number of gear-days	Catch rate	
					Number/ gear-day	Wt (kg)/ gear-day
Bays, estuaries, and tidal lagoons						
Gulf NB	Res	1999-2002	Fyke	218	0.191	
Gulf NS	Res	2001	Fyke	208	0.466	0.177
Gulf NS[b]	Com	1997-2005	Fyke	10,933		1.342
PEI	Res	1999-2005	Fyke	3,463	1.270	0.352
PEI[c]	Com	1996-2006	Fyke	92,347		0.696
PEI[d]	Com	1996-2006	Fyke	92,327	2.043	
Salt marsh pools						
PEI	Res	2001	Pots	259	0.000	0.000
Salt marsh creeks						
PEI	Res	2001	Pots	889	0.019	
Lakes						
Gulf NS	Res	1979-1981	Pots	163	0.166	
Barachois ponds with an outlet to the sea						
PEI	Res	1999-2003	Fyke	3,448	1.297	0.477
Landlocked barachois ponds						
Gulf NB	Res	2002	Fyke	45	0.000	0.000
PEI	Res	1999-2000	Fyke	105	0.446	0.145
Freshwater impoundments						
PEI	Res	1999-2005	Fyke	1,304	0.324	0.171

[a]Res - research fishery, Com - commercial fishery.

[b]Legal-size catches only. Catch rates not adjusted for changes in minimum size.

[c]Catch rates of legal eels, adjusted to a minimum size of 53 cm (see Table 18).

[d]Catch rates of sublegal eels, adjusted to a minimum size of 53 cm (see Table 18).

Table 20. Mean densities (eels/100 m^2) of American eels estimated from electrofishing surveys in Gulf New Brunswick rivers.

Year	Restigouche		Jacquet		Tabusintac		Miramichi		Kouchibouguac		Kouchibouguacis		Richibucto		Buctouche		Cocagne	
	Density	N[a]	Density	N	Density	N	Density	N	Density	N	Density	N	Density	N	Density	N	Density	N
1952							0.559	16										
1953							1.129	17										
1954							0.305	10										
1955							0.572	24										
1956							0.395	24										
1957							0.252	18										
1958							0.276	16										
1959							2.005	18										
1960							0.869	10										
1961							0.340	13										
1962							0.135	10										
1963							0.437	9										
1964							1.169	14										
1965							0.870	14										
1966							1.069	14										
1967							1.024	16										
1968							1.417	16										
1969							0.623	16										
1970							0.313	60										
1971							1.897	82										
1972	0.428	22					1.457	84										
1973	0.505	25					1.249	92										
1974	0.351	26					1.570	91										
1975	1.014	31					1.230	89										
1976	0.225	30					1.061	80										
1977	0.371	34					1.242	86										
1978	0.284	38					0.652	87										
1979	0.097	40					0.159	48										
1980	0.478	42					0.152	45										
1981	0.091	45					0.372	47										
1982	0.086	47					0.888	85										
1983	0.509	51					0.944	81										
1984							0.470	85										
1985	0.323	45					0.178	40										
1986	0.477	30					0.150	32										
1987	0.294	15					0.176	15										
1988	0.761	15					0.273	15										
1989	0.597	15					0.071	15										
1990	0.360	15					0.247	15										
1991	0.207	8					0.000	3										
1992	0.061	10					0.159	14										
1993	0.000	15					0.636	72										
1994	0.308	11					0.209	88										
1995	0.000	13					0.071	35										
1996	0.000	15					0.669	23							0.537	12		
1997	0.000	28					0.322	70					0.557	8	0.000	10		
1998	0.218	38					0.505	69					2.075	4	0.887	10		
1999	0.428	52			0.000	25	0.869	84	1.897	2			0.549	4	0.618	10	3.805	2
2000	0.458	66			0.014	24	0.588	70	0.267	5	0.000	2	1.081	4	1.133	10	2.519	2
2001	2.055	101			0.000	23	1.360	71	0.000	3	0.000	3	2.725	5	0.237	9	0.000	3
2002	2.446	95	4.635	8			0.570	72	0.825	3	0.561	3	2.495	5	1.010	8	1.220	3
2003	0.405	76					0.553	64										
2004	0.857	86					0.785	69										
2005	1.082	103					0.981	68	0.825	3	0.000	3	1.239	5	1.078	8	0.000	3
2006	1.415	91					0.679	73										
2007	0.668	173					1.464	72										

[a]Number of electrofishing sessions.

Table 21. Mean densities (eels/100 m^2) of American eels estimated from electrofishing surveys in Gulf Nova Scotia rivers.

Year	Phillip		Wallace		Waugh		John		Middle (Pictou)		East (Pictou)		Suther-lands		French		Barneys		West (Antigonish)		South (Antigonish)		Pomquet		Afton		Tracadie		Mabou		Margaree		Cheticamp	
	Density	N[a]	Density	N	Density	N	Density	N	Density	N	Density	N	Density	N	Density	N	Density	N	Density	N	Density	N	Density	N	Density	N	Density	N	Density	N	Density	N	Density	N
1957																															4.061	9		
1958																															1.877	7		
1959																															3.090	8		
1960																															5.257	8		
1961																															4.559	8		
1962																															3.870	1		
1963																															4.929	13		
1964																															2.964	18		
1965																															2.306	14		
1966																															3.266	23		
1967																															2.323	22		
1968																															1.545	21		
1969																															1.170	10		
1970																																		
1971																																		
1972																																		
1973																																		
1974																																		
1975																															1.943	30		
1976																															1.725	25		
1977																													1.792	8	1.462	16		
1978			0.354	6							0.372	4			0.916	4			3.507	4											1.308	20		
1979																															1.170	17		
1980	1.538	4					0.113	2			0.282	4	3.888	3			0.351	5																
1981																																		
1982																																		
1983																																		
1984																																		
1985																																		
1986	1.067	1																	5.078	5											0.559	13		
1987																			0.000	2											0.967	4		
1988																			1.161	1														
1989																																		
1990																																		
1991																			0.000	1											1.162	5		
1992											0.000	5	0.000	3	0.000	3	0.000	4	0.000	2			1.247	6	0.000	3					0.000	5		
1993	0.000	5	0.000	4			0.000	6			0.000	3							0.000	2											0.000	3		
1994											0.000	5	0.000	2	0.000	3	0.000	3	0.000	2			0.000	6	0.000	3					0.146	5		
1995	0.000	3	0.000	5			1.931	6	0.000	4	0.000	5	0.000	2					0.328	2											0.115	6		
1996			0.000	6					0.000	5			0.000	2					4.791	5											0.000	5		
1997	0.000	1	0.000	3							0.000	3					0.000	2	0.000	4	0.000	3	0.000	4	0.000	2	0.000	3	0.000	2	0.197	5		
1998	0.000	3	0.000	4			2.897	4			0.000	4							3.527	4									0.283	2	0.100	5		
1999	0.000	4	0.000	7							2.966	5	0.000	2	0.000	2	0.000	2	0.906	5	0.000	3	0.000	3	0.000	2			0.000	2	0.000	5		
2000	0.000	3	4.327	3							0.000	3	0.000	2			0.000	1	0.000	5							0.000	2	0.407	2	0.224	5	0.947	2
2001	0.000	2	0.000	3							0.000	6					0.000	2	0.000	3											0.148	4		
2002	0.000	2	0.000	3	0.000	2	0.000	3			0.000	4					0.000	3	0.000	4											1.876	40	0.000	4
2003																															0.124	5		
2004																															0.300	15		
2005																															0.000	13		
2006																															0.000	13		
2007																															0.000	9		

[a]Number of electrofishing sessions.

Table 22. Mean densities (eels/100 m^2) of American eels estimated from electrofishing surveys in Prince Edward Island.

Year	Trout (Coleman)		Ellerslie		Morell		Vernon		Seal (Vernon)		Enmore		Little Pierre Jacques	
	Density	N[a]	Density	N	Density	N	Density	N	Density	N	Density	N	Density	N
1975					12.731	5								
1976														
1977														
1978														
1979														
1980														
1981														
1982														
1983														
1984					8.183	4								
1985					5.804	6								
1986														
1987														
1988														
1989														
1990														
1991														
1992														
1993	0.000	1	0.000	4			0.000	4	0.000	4	0.000	4	0.000	4
1994			0.000	12	1.260	12	0.000	12	0.000	12	0.000	16	0.000	12
1995			0.000	12	0.524	30	0.000	8	0.000	8	0.000	12	0.000	12
1996					0.409	14								
1997					0.437	14								
1998					3.083	6								
1999														
2000														
2001					1.761	6								
2002					1.181	4								

[a]Number of electrofishing sessions.

Table 23. Mean densities of eels in the southern Gulf of St. Lawrence.

Region	Location	Years	Method[a]	No. of surveys	Eels/ ha	kg/ ha
River						
Gulf NB	Restigouche River	2000-2007	E-fish		117.3	7.7
Gulf NB	Miramichi River	2000-2007	E-fish		87.3	5.7
Gulf NS	Margaree River	2000-2007	E-fish		33.4	2.2
Mean					79.3	5.2
Barachois ponds with an outlet to the sea						
PEI	Clarkes Pond	2000, 2001	CMR	2	21.3	8.2
PEI	Lake of Shining Waters	2000	CMR	1	20.1	6.7
PEI	Rollings Pond	2000, 2001	CMR	2	191.8	67.8
PEI	Long Pond, Dalvay	2000, 2003	CMR	2	121.5	33.3
PEI	Campbells Pond, Dalvay	2000, 2001	CMR	2	22.9	6.4
PEI	Schooner Pond	2000	CMR	1	28.1	7.8
PEI	Mean				67.6	21.7
Freshwater lakes and impoundments						
NS	Lake Ainslie	2007	GBB	4	18.2	
PEI	Murphys Pond, Trout River, Millvale	2006, 2007	GBB	2	0.0	
PEI	Bells (Campbells) Pond, Hunter R.	2007	GBB	1	207.1	
PEI	Cass Pond	2006	GBB	2	83.0	
PEI	North Pinette Pond	2000	CMR	1	84.4	52.5
Mean					93.6	
Estuaries and bays						
NB	St. Nicholas River, Richibucto	2007	GBB	1	38.5	
NB	Kouchibouguac River	2007	GBB	1	27.8	
NS	Margaree River Estuary	2007	GBB	1	41.4	
PEI	Mill River Estuary	2007	GBB	1	104.9	
PEI	Trout River Estuary, Roxbury	2007	GBB	1	40.0	
PEI	Grand River Estuary	2007	GBB	1	27.0	
PEI	New London Bay	2007	GBB	1	20.9	
PEI	Hope River Estuary	2007	GBB	1	151.4	
PEI	Hunter River, Rusticoville	2007	GBB	1	103.4	
PEI	Wheatley River, Cymbria	2007	GBB	1	70.3	
PEI	Covehead Bay	2007	GBB	1	43.2	
PEI	Morell River Estuary	2006, 2007	GBB	2	300.1	
PEI	Basin Head	2005, 2006	GBB	6	71.9	
PEI	Flat River Estuary	2002	CMR	1	28.3	10.5
PEI	South Pinette Estuary	2000	CMR	1	655.8	192.2
PEI	North Pinette Estuary	2000	CMR	1	171.2	49.9
PEI	Mean				137.6	

[a]E-fish - electrofishing; CMR - capture-mark-recapture estimate; GBB - glass bottom boat survey

Table 24. Catch rates of eels <9.0 cm long at two ramp traps at the base of the dam at McCallums Pond, PEI, and at one habitat trap at the base of of the dam at Cass Pond, PEI.

Year	MacCallums ramp traps															Cass habitat trap								
	June			July			August			July & August			June			July			August			July & August		
	Eels <9.0 cm	Gear-days	Eels/ gear-day	Eels <9.0 cm	Gear-days	Eels/ gear-day	Eels <9.0 cm	Gear-days	Eels/ gear-day	Eels <9.0 cm	Gear-days	Eels/ gear-day	Eels <9.0 cm	Gear-hauls	Eels/ gear-haul	Eels <9.0 cm	Gear-hauls	Eels/ gear-haul	Eels <9.0 cm	Gear-hauls	Eels/ gear-haul	Eels <9.0 cm	Gear-hauls	Eels/ gear-haul
2005				8	18	0.44	76	51	1.49	84	69	1.22				23	5	4.60	13	9	1.44	36	14	2.57
2006	6	51	0.12	12	58	0.21	27	62	0.44	39	120	0.33	7	14	0.50	5	14	0.36	1	11	0.09	6	25	0.24
2007	0	38	0.00	1	62	0.02	25	64	0.39	26	126	0.21	7	9	0.78	18	13	1.38	4	13	0.31	22	26	0.85

Table 25. Mean of weekly eel counts in fish gears which intercept upstream and downstream movement in the southern Gulf of St. Lawrence, by year.

	Mean number of eels per week																		
System	Tabusintac	Tabusintac	Miramichi	Miramichi	Miramichi	Miramichi	Miramichi	Miramichi	Miramichi	Miramichi	Miramichi	Miramichi	Miramichi	Miramichi	Miramichi	Miramichi	Miramichi	Margaree	Morell
Site	1	2	Millbank	NW Eel Ground Index	Cassilis Estuary	Cassilis Estuary	Red Bank NW	Red Bank Little SW	Little SW at Catamaran	Catamaran Brk.	Catamaran Brk.	SW Eel Ground Enclosure	SW Eel Ground FF	Millerton	Millerton	Bartholemew	Fordview	Leards
Gear[a]	ET	ET	ET	ET	ET	ETS	ET	ET	RST	FF Up	FF Dn	ET	ET	ET	ETS	FF Dn	RST	FWT
1976			2.70													0.00		
1977			1.45													0.34		
1978			0.93															
1979			1.84															
1980			0.76															
1981			1.16															
1982			1.28													0.00		
1983			1.03													0.03		
1984			1.34													0.04		
1985			0.00													1.13		0.00
1986			0.71													1.90		0.05
1987			1.05															0.00
1988			0.44															0.04
1989			0.82															0.09
1990			0.91							0.21	1.40							0.13
1991			0.21							0.30	1.47							0.00
1992	1.00		0.31	1.81						0.78	2.15	3.71						0.20
1993	5.25	0.93		0.72						0.15	0.79	1.54						0.11
1994	0.00	0.26		0.77			1.52	0.09		0.04	1.10	2.18		2.63				0.00
1995				0.74			1.28	0.52		0.04	0.80	2.36	2.39	3.01				0.04
1996	0.00	0.00		6.40			6.46	6.89		0.08	4.05	0.62	18.67	1.44				0.41
1997				2.47			0.78	0.73		0.00	2.31	15.71	1.76	2.44				
1998	4.03	1.05		0.71	3.48	7.97	0.00	0.93		0.00	2.16	2.59	2.05	1.35				
1999	12.06	2.53		1.26	0.99	3.84	0.16	0.26		0.00	0.55	0.36	0.64	1.27				0.00
2000				1.81	2.19	3.40	0.26	0.51	3.89	0.04	0.68	1.43	0.76	2.77				
2001					1.25	4.28	0.18	1.34	16.95	0.00	0.41	1.42	1.41	1.42	5.25		3.66	
2002	7.55	1.65		1.11	2.77	2.93	0.38	1.11	17.04	0.11	0.68	5.16	5.80	1.35	2.95		1.51	0.00
2003				1.91	1.36	2.58	0.53	0.76	1.17	0.00	0.34	1.53	2.82	1.36	5.60		10.92	
2004					2.08	1.94		0.18	1.08	0.00	0.40	0.67	1.04	1.79	7.68		34.35	
2005					3.02	1.81			0.98	0.48	0.12	1.00	1.68	3.15	3.50		41.86	
2006					2.52	10.50			1.81	0.15	1.02	1.14	0.27	2.80	7.24		42.62	

[a]ET - estuary trap; ETS - estuary trap, with pen fitted with fine mesh to retain Atlantic salmon smolts; FF - fish fence; FWT - fishway trap; RST - rotary screw trap.

Table 26. Age frequency distributions of American eels in the southern Gulf of St. Lawrence. Eels are considered to be age 0 in their year of arrival in continental waters. Data from Cairns et al. 2007, DFO files, H. Lamson (unpubl.) and V. Tremblay (unpubl.).

Province	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NS	NS	NS	NS	NS	NS
System	Restigouche	Restigouche	Restigouche	Restigouche	Restigouche[a]	Restigouche	Miramichi Bay	Miramichi Bay[b]	Miramichi	Miramichi	Miramichi	Miramichi[c]	Miramichi	Miramichi	Margaree	Margaree	Margaree	Margaree[d]	Margaree	Margaree
Site	Butters	Butters	Moses	Butters	Butters/ Moses	Butters/ Moses	Oak Pt.	Loggieville	Rocky & Clearwater Brooks	Rocky Br	Rocky & Clearwater Brooks	Cains & Dungarvon	Rocky, Clearw., Cains, Dungar.	Various	Fordview	Fordview	Fordview	Fordview	Fordview	SW Margaree
Habitat	River	River	River	River	River	River	Bay	Estuary	River	River	River	River	River	Stream	River	River	River	River	River	River
Main stage	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Silver
Year	2004	2005	2005	2006	2007	04-07	2003	2007	2003	2005	03-05	2007	03-07	2003	2004	2005	2006	2007	04-07	2005
Gear[f]	RST	RST	RST	RST	RST	RST	Fyke	Fyke	RST	RST	RST	RST	RST	E-fishing	RST	RST	RST	RST	RST	Weir
Exploited	No	No	No	No	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	Yes
Length (cm)																				
Mean	28.5	27.6	31.8	29.6	32.2	30.2	52.8	49.6	36.7	42.5	38.8	29.1	37.3	31.7	46.2	41.7	34.4	40.3	41.3	64.5
SD	9.0	6.3	9.8	7.3	7.6	8.2	9.0	10.4	8.2	27.1	15.7	11.5	15.4	11.7	15.7	14.7	10.6	12.8	14.3	4.8
N	46	21	30	50	54	201	74	98	28	12	43	8	51	29	51	56	34	46	187	71
Age (years)																				
Mean	4.4	4.3	4.9	4.9	5.5	4.9	6.0	6.0	5.1	7.4	5.8	4.5	5.6	4.9	8.1	6.7	6.8	6.5	7.1	21.9
SD	3.7	1.5	1.9	1.8	2.5	2.6	1.0	2.0	1.4	6.1	3.5	2.3	3.4	2.5	4.2	2.2	4.4	2.0	3.3	2.9
N	46	21	30	50	54	201	74	98	28	12	43	8	51	29	51	56	34	46	187	71
0																				
1					3	3								2						
2	14		2			16		2				2	2	2		1			1	
3	6	11	7	7	6	37	1	12	2		2	2	4	5	2	3	3	1	9	
4	8		7	23	9	47	6	5	9	3	12		12	4	3	5	4	8	20	
5	8	4	3	7	14	36	7	19	8	6	14	1	15	5	7	5	5	6	23	
6	6	4	3	5	8	26	41	26	6	1	8	1	9	7	13	10	11	9	43	
7	2	2	5	4	5	18	16	14			2	1	3	1	6	18	5	8	37	
8			2	3	4	9	3	9	3		3	1	4	1	5	3	2	7	17	
9	1		1		4	6		5						1	3	5	1	2	11	
10								5							2	4	1	4	11	
11								1							1			1	2	
12															2				2	
13				1		1								1	1	2			3	
14															1				1	
15															1				1	2
16																				1
17					1	1									2				2	2
18															1				1	2
19																	1		1	3
20										1	1		1							16
21										1	1		1							5
22																				13
23															1				1	6
24																				8
25																				6
26	1					1											1		1	2
27																				1
28																				4
29																				
30																				

Table 26 (continued)

Province	PEI	PEI	PEI	PEI	PEI	PEI	PEI	PEI	PEI	PEI	PEI	PEI	PEI	PEI
System	Trout R. Tyne Valley	Brackley Bay	Covehead Bay	Boughton	PEI	Basin Head	Wheatley R.	Wheatley R.	Wheatley R.	Brackley Bay	Brackley Bay	Brackley Bay	Wheatley/ Brackley	Long P Dalvay
Site										Shaws	Shaws	Shaws		
Habitat	Estuary	Bay	Bay	Estuary	Estuaries & bays	Brackish lagoon	Estuary	Estuary	Estuary	Bay	Bay	Bay	Est.,bay	Barachois pond
Main stage	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Year	2002	2003	2003	1999	99-03	2005	2004	2005	04-05	2004	2005	04-05	04-05	2003
Gear[1]	Fyke	Fyke	Fyke	Fyke	Fyke	Fyke	MS	MS	MS	MS	MS	MS	MS	Fyke
Exploited	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Length (cm)														
Mean	56.6	64.6	50.1	42.3	55.7	56.4	62.4	69.5	65.3	63.0	45.1	58.1	62.8	51.9
SD	12.1	11.3	14.7	9.4	13.2	11.5	11.0	11.7	11.7	8.8	6.9	11.6	12.1	13.7
N	257	35	64	14	370	98	24	17	41	16	6	22	63	14
Age (years)														
Mean	4.7	6.0	5.0	3.7	4.8	5.4	5.3	6.9	6.2	6.1	4.0	5.5	6.0	11.2
SD	1.0	1.1	1.9	0.8	1.3	1.7	1.4	1.2	1.5	1.2	1.5	1.6	1.6	6.7
N	257	35	64	14	370	98	24	29	53	16	6	22	75	14
0														
1			2	1	3									
2	5		8		13	5	1		1				1	
3	21	1	3	1	26	15	1	2	3		4	4	7	
4	85	1	8	12	106	6	5		5	1		1	6	2
5	102	8	12		122	22	6		6	5		5	11	2
6	33	14	20		67	18	6	4	10	4	2	6	16	2
7	11	10	6		27	25	4	15	19	4		4	23	
8			4		4	5	1	8	9	2		2	11	
9		1	1		2	2								1
10														
11														
12														2
13														
14														
15														1
16														1
17														
18														
19														1
20														1
21														
22														
23														
24														1
25														
26														
27														
28														
29														
30														

Table 26 (continued)

Province	PEI	PEI	PEI	PEI	PEI	PEI	PEI	PEI	PEI	PEI	PEI
System	McCallums Pond	Cass Pond	Marshalls Pond	Boughton	PEI	McCallums Pond	Cass Pond	Long Pond Outlet[e]	Long Pond Outlets[f]	Campbells Pond	Long/Campbells outlet[g]
Site				Whitlocks							
Habitat	Impoundment	Impoundment	Impoundment	Impoundment	Impoundment	Foot of dam	Foot of dam	Barachois outlet	Barachois outlet	Barachois outlet	Barachois outlet
Main stage	Yellow	Yellow	Yellow	Yellow	Yellow	Elver	Elver	Silver	Silver	Silver	Silver
Year	2003	2003	2003	1999	99-03	2006	2006	2002	2002	2002	2002
Gear[f]	Fyke	Fyke	Fyke	Fyke	Fyke	Ramp	HT	Fyke	Fyke	Fyke	Fyke
Exploited	No	No	No	No	No	No	No	No	No	No	No
Length (cm)											
Mean	68.3	53.4	60.4	73.2	62.3	9.5	11.2	36.3	68.7	73.5	71.4
SD	12.9	12.0	16.4	9.7	15.2	1.9	7.5	3.3	4.9	4.5	5.2
N	12	20	30	15	77	87	19	5	36	46	82
Age (years)											
Mean	13.4	6.3	10.9	17.7	11.4	0.2	0.5	5.2	19.2	16.7	17.8
SD	3.9	2.2	6.1	4.4	6.0	0.5	0.6	0.4	3.1	3.5	3.5
N	12	20	30	15	77	87	19	5	36	46	82
0						72	10				
1						12	8				
2						3	1				
3			1		1						
4		3			3						
5		4	7		11			4			
6	1	7	3		11			1			
7	1	2	4		7						
8		3	1		4					1	1
9											
10										1	1
11	1			2	3					2	2
12	1		2		3					3	3
13	1				1				2	3	5
14	2	1	4		7					1	1
15				2	2				1	4	5
16	2			3	5				1	4	5
17	2		2	2	6				5	6	11
18	1		2	2	5				6	6	12
19									4	5	9
20			2		2				8	4	12
21			1		1				6	4	10
22				2	2				1	1	2
23			1		1						
24											
25				1	1					1	1
26				1	1				1		1
27											
28											
29											
30									1		1

[a]Results of histological examination of gonad tissue: 45 eels were female, 7 showed no sexual differentiation, and 3 had very small gonads that could not be successfully extracted.

[b]Sampled from commercial harvest in an area with a minum legal size of 53 cm

[c]Results of histological examination of gonad tissue: 5 eels were female, 1 showed no sexual differentiation, and 2 had very small gonads that could not be successfully extracted.

[d]Results of histological examination of gonad tissue: 45 eels were female and 3 showed no sexual differentiation.

[e]Eels <45 cm long.

[f]Eels ≥45 cm long.

[g]RST - Rotary screw trap; MS - mud spear, used in winter; HT - habitat trap.

Table 27. Reported landings (t) of yellow and silver American eels in Scotia-Fundy, by statistical district. Data for 1950-1993 are from Jessop 1996. Data for 1994-2006 are from DFO files. Data for 2006 are preliminary.

Year	Cape Breton							Eastern mainland Nova Scotia								Southwest Nova Scotia										
	1	4	3[a]	6	7	8	9	14	15	16	17	19	20	18	21	22	23	25	26	27	28	30	31	32	33	34
1950								1.8					5.4								7.3				6.3	
1951								0.9				0.9	6.3								12.2				5	
1952												3.2	6.8							0.9	19	0.9			4.5	
1953	0.9						0.9	0.5				0.9	9.1					5.4		5.9	10.9				5	
1954							1.8	0.5				0.5	10.4		0.9			1.8		14.5	15.9				4.5	
1955					0.9		5	0.5				1.8	12.7		0.9		0.5	1.8	1.8	7.7	20				9.5	3.7
1956							1.8	0.5				2.3	10.9		0.9		1.8	0.5	0.5	2.7	19.5	1.4			5.4	
1957		0.9					1.4					2.7					0.5				7.7				8.2	
1958		1.4					2.7				2.7	5.4			0.9					4.5	16.3				5	
1959	0.5	0.5					0.9				0.9	5			0.9		0.9				10				0.5	
1960		0.9					3.6	1.8			1.4	0.5			0.5				0.5	2.3	5.9				3.6	
1961		0.5		0.9				2.7			0.9	3.6	0.9						0.5	4.1	6.8				4.1	
1962		0.5					1.8	0.9				2.7	1.8				1.8		0.5	3.6	2.7	0.5			7.7	
1963		0.5					1.8				0.5	3.6	5				1.4			1.4	17.2				9.1	
1964		1.4					0.5					0.9	5							4.1	8.6				6.8	0.5
1965		0.9			0.9		1.8						0.9		0.5				0.5	2.3	5.9				7.7	1.4
1966							0.5					0.5	2.7		0.9		0.5			5.4	7.7				8.6	
1967		0.8					1.3					0.2			0.2				0.2		6.4				4.6	
1968					6.5		0.5					1.4	0.2		0.6				0.2	2	3.9				4.4	2.2
1969					4		3.2					0.9			1.6				0.2	4.2	5.3				4.2	
1970		0.1			0.4		1.6				0.6	1			1				0.9	3.3	3.4				16.7	
1971	0.6	0.1					1.9				2.3	3	5		0.6				0.7	1.9	1.8	17.9			13.3	
1972	0.4	0.1					0.6				0.1	1.4	0.1		0.5				0.2	3.5	4.3				13.8	
1973					0.8		0.5					0.9	1.8		0.2				0.3	4.9	1.7				8.8	
1974					0.9		2.3					1.3								0.5	3.6				5	
1975							0.9					0.5			0.5					4.1	5.9				0.5	
1976							1					1								5					2	
1977					2															1	4					
1978												1							1	4	45		1			
1979					1		5												4	1	8	1	1			
1980												1	9.5						1	5	13		1			
1981					1							1							1	8	10				1	
1982								2											4	5	6					
1983												2							1	1	13				1	
1984					5																3					
1985					2																5					
1986					2														4							
1987								13													1					
1988								13													1					
1989								1													5					
1990					<1															<1	4					
1991		<1									<1	1	10						11	3	9					
1992		2	6	11				3		4			3					1	8	2	10		1			
1993	1	2	9	10	17		1	1					6		<1				2	<1	4				15	
1994		0.579	3.689	0.410	0.368		1.937	0.120			0.020	0.841	6.503	1.014	0.025		0.269	0.050	6.546	7.185	11.852		1.175		0.576	0.147
1995	3.237	1.718	0.116	2.416	2.446		5.224	0.190			0.422	0.207	1.534	0.397	0.002		0.010		3.501	8.542	13.563	1.116	0.964		2.147	7.835
1996	3.731	3.403		1.663	2.780		2.306	0.493	0.015	0.035	4.353	0.100	1.899				1.150		3.068	4.217	8.094	1.176	2.533		1.534	0.654
1997	3.301	0.095	0.036	0.701	1.545	0.064	0.748	0.292	0.035	1.395	7.563	0.595	0.238					0.107	3.606	6.769	8.056	0.426	5.555		1.402	1.718
1998	5.244	0.592		2.819	6.220	0.216	2.426	0.430	0.200	1.185	4.456	0.511	2.785				0.205	0.178	3.216	7.032	12.964	0.272	7.341		3.960	4.834
1999	3.238	0.354	0.060	8.997	0.409	3.599	1.157	0.700	0.329	2.061	0.085	0.233	3.330				0.010	0.286	1.576	5.315	11.455	0.240	7.660	0.923	2.994	5.965
2000	4.305	0.137		3.846	0.090	0.025	4.156		0.140	2.046	0.105	1.362	2.560	4.726	0.153				2.120	6.976	15.076	0.356	1.388	0.014	18.790	3.671
2001	0.840	0.137		7.109	2.122	0.500	0.730	0.105	0.150	4.337	0.030	0.287	1.703	10.147		0.114	0.007		1.680	7.084	10.312	0.077	2.092	0.708	6.689	2.320
2002		0.136		9.129	3.063	0.025	0.905		0.065	3.460	0.051	0.428	0.265	0.118		0.300			0.668	5.733	6.670	0.030	1.073	2.153	6.214	1.773
2003	2.982			4.613	0.135	0.026	1.631	0.135	0.615	0.350	0.008	0.380	6.089						1.102	2.734	1.456	0.102	0.209	1.585	5.011	1.540
2004	1.809	0.057		0.736	5.031	2.481	2.457	3.183	0.030	0.360		1.005	2.334	4.362		0.584	0.120	0.070	2.465	9.308	6.982	0.188	1.472	0.470	6.364	1.397
2005	5.416	0.186		1.847	1.549	0.617	1.978	1.841	0.021		2.106	0.099	2.284	2.349				0.113	1.333	1.957	5.727	0.096	1.004		10.821	1.605
2006	2.369	0.101		4.539	1.474	0.318	1.708	1.343	0.006	0.305	0.005	0.147	2.059	1.125		0.722		0.226	2.201	7.481	11.151	0.129		0.218	12.652	0.983

[a]Landings for the Scotia-Fundy portion of Statistical District 3.

[b]Jessop 1996 reported landings of 46 t for Statistical Districts 48-49, but indicated in a footnote that this value was "believed to be error." The value given here is the mean of the 3 preceding and the 3 succeeding years.

Table 27 (continued)

Year	Fundy Nova Scotia											Southwest New Brunswick										
	36	37	38	39	35	40	41	42	43	44	24	81	79	48-49	55	56	57	58	59	53	52	51
1950															3.7	14	0.8					
1951															1.2	0.8	0.8					
1952															2.4	5.8	0.4					
1953			0.5					0.5							3.7	16.9	0.4					
1954								0.5							5.4	4.1						
1955								0.5							4.1	28.8	6.2				0.5	
1956															1.6	0.8						
1957								0.5							4.5						0.5	
1958														0.5	6.6							
1959																						
1960								0.5						0.8								
1961														1.2	7.4							
1962														0.5	7.8	0.4						
1963															7	1.6					4.5	
1964			15											0.5	8.3						0.9	
1965			4.1												3.3	2						
1966			1.4												18.9	0.4	0.4					
1967			0.1												1.6	0.4	0.4				1.7	
1968			0.2												10.3	0.4	0.8				0.8	
1969															14.8	43.2	0.4				2	
1970															13.2	30.5	7	1.2		0.1	2.3	
1971												0.1		3.6	9.9	36.2	12.3	4.9		0.1		
1972														1.3	0.8	25.9	7.4					
1973															7	15.6	4.5					
1974															4.9	13.2			2.8			
1975															0.4	33.7	11.5		6.3			
1976														1	7	56	14					
1977							2								30	49	21					
1978															17	24	3					
1979														2.167[b]	23	25	26					
1980														8	16							
1981														4	20	9		1			1	
1982															3							
1983							1															
1984															3							
1985														6	51	15	1					
1986														5	32	17	1					
1987												5		2	10	23	9					
1988												10		65	60							
1989												5			100	9	2					
1990										<1		8		8	41	28	3	2			0.1	
1991									<1	3				17	1	41	7	22	0.1		0.1	
1992							1	1				3		2	2	49	2		10.3	0.1	1	
1993								1	1	1				17	31	49	7	2	10	0.1	0.8	
1994	0.824		0.012	0.544		0.080		0.602	0.020	0.078		0.025		0.988	9.545	48.001	7.727		19.781		0.465	
1995	0.541	0.100		0.699				1.035	0.121	1.662	3.306		0.030	12.861	18.374	37.414	17.707	0.564	13.365		0.392	
1996	0.819							0.757	0.043	2.058	3.424	0.240		13.083	2.228	22.948	24.030			0.023	0.092	0.365
1997	0.822	0.187					0.109	0.480	0.203	1.603	2.581			14.700		25.114	28.958			0.034		0.410
1998	1.550	0.015		0.559	1.404		0.060	0.650	0.280	1.867		0.082	0.600	19.466	31.328	20.731	15.497			0.040		
1999			0.110	0.045	3.898			0.599	0.245	1.205	2.556	0.036	2.798	24.040	11.468	15.144	24.821			0.015	1.270	
2000	5.588	0.018	0.121	0.029			0.075	3.661	0.025	4.741	3.722	0.270	0.177	13.562	4.446	18.626	29.812	2.000				0.100
2001	0.315	0.037	0.108	0.015				0.775	0.290	4.244	3.342	1.626		6.772	22.096	12.358	21.474					
2002	3.348								0.565	2.304	3.786	2.798		12.657	4.438	13.221	30.187			0.010		
2003	2.593			0.025					0.730	0.956		0.091		28.488		13.112	17.337			0.010		
2004	1.088	0.014	0.049	0.011				0.460	0.025		3.222	0.115		18.408		14.582	22.707					
2005	0.061						0.015	0.317			2.776	2.565		0.145	1.814	31.198	9.759				0.363	
2006	2.779	0.018	0.038					1.483	0.015	4.372	4.756	2.978		4.023	2.179	18.935	12.713			0.035		

Table 28. Reported landings (t) of yellow, silver, and elver American eels in Scotia-Fundy. Yellow and silver landings data for 1950-1993 are from Jessop 1996. Elver landings data for 1989-1995 are from Jessop 1998. Other data are from DFO files. Data for 2006 are preliminary.

Year	Yellow and silver eels							Elvers	All eels		
	Nova Scotia					New Brunswick	Total	New Brunswick and Nova Scotia	Nova Scotia	New Brunswick	Total
	Cape Breton	Eastern mainland Nova Scotia	Southwest Nova Scotia	Fundy Nova Scotia	Total						
1950		7.2	13.6		20.8	18.5	39.3		20.8	18.5	39.3
1951		8.1	17.2		25.3	2.8	28.1		25.3	2.8	28.1
1952		10.0	25.3		35.3	8.6	43.9		35.3	8.6	43.9
1953	1.8	10.5	27.2	1.0	40.5	21.0	61.5		40.5	21.0	61.5
1954	1.8	12.3	36.7	0.5	51.3	9.5	60.8		51.3	9.5	60.8
1955	5.9	15.9	45.0	0.5	67.3	39.6	106.9		67.3	39.6	106.9
1956	1.8	14.6	31.8		48.2	2.4	50.6		48.2	2.4	50.6
1957	2.3	2.7	16.4	0.5	21.9	5.0	26.9		21.9	5.0	26.9
1958	4.1	9.0	25.8		38.9	7.1	46.0		38.9	7.1	46.0
1959	1.9	6.8	11.4		20.1		20.1		20.1	0.0	20.1
1960	4.5	4.2	12.3	0.5	21.5	0.8	22.3		21.5	0.8	22.3
1961	1.4	8.1	15.5		25.0	8.6	33.6		25.0	8.6	33.6
1962	2.3	5.4	16.8		24.5	8.7	33.2		24.5	8.7	33.2
1963	2.3	9.1	29.1		40.5	13.1	53.6		40.5	13.1	53.6
1964	1.9	5.9	20.0	15.0	42.8	9.7	52.5		42.8	9.7	52.5
1965	3.6	1.4	17.8	4.1	26.9	5.3	32.2		26.9	5.3	32.2
1966	0.5	4.1	22.2	1.4	28.2	19.7	47.9		28.2	19.7	47.9
1967	2.1	0.4	11.2	0.1	13.8	4.1	17.9		13.8	4.1	17.9
1968	7.0	2.2	12.7	0.2	22.1	12.3	34.4		22.1	12.3	34.4
1969	7.2	2.5	13.9		23.6	60.4	84.0		23.6	60.4	84.0
1970	2.1	2.6	24.3		29.0	54.3	83.3		29.0	54.3	83.3
1971	2.6	10.9	35.6		49.1	67.1	116.2		49.1	67.1	116.2
1972	1.1	2.1	21.8		25.0	35.4	60.4		25.0	35.4	60.4
1973	1.3	2.9	15.7		19.9	27.1	47.0		19.9	27.1	47.0
1974	3.2	1.3	9.1		13.6	20.9	34.5		13.6	20.9	34.5
1975	0.9	1.0	10.5		12.4	51.9	64.3		12.4	51.9	64.3
1976	1.0	1.0	7.0		9.0	78.0	87.0		9.0	78.0	87.0
1977	2.0		5.0	2.0	9.0	100.0	109.0		9.0	100.0	109.0
1978		1.0	51.0		52.0	44.0	96.0		52.0	44.0	96.0
1979	6.0		15.0		21.0	76.2	97.2		21.0	76.2	97.2
1980		10.5	20.0		30.5	24.0	54.5		30.5	24.0	54.5
1981	1.0	1.0	18.0		20.0	35.0	55.0		20.0	35.0	55.0
1982		2.0	15.0		17.0	3.0	20.0		17.0	3.0	20.0
1983		2.0	16.0	1.0	19.0		19.0		19.0	0.0	19.0
1984	5.0		3.0		8.0	3.0	11.0		8.0	3.0	11.0
1985	2.0		5.0		7.0	73.0	80.0		7.0	73.0	80.0
1986	2.0		4.0		6.0	55.0	61.0		6.0	55.0	61.0
1987		13.0	1.0		14.0	49.0	63.0		14.0	49.0	63.0
1988		13.0	1.0		14.0	135.0	149.0		14.0	135.0	149.0
1989		1.0	5.0		6.0	116.0	122.0	0.026	6.0	116.0	122.0
1990	0.5		4.5	0.5	5.5	90.1	95.6	0.174	5.5	90.2	95.8
1991	0.5	11.5	23.0	3.5	38.5	88.2	126.7	0.065	38.5	88.3	126.8
1992	19.0	10.0	22.0	2.0	53.0	69.4	122.4	0.227	53.0	69.6	122.6
1993	40.0	7.5	21.5	3.0	72.0	116.9	188.9	0.713	72.2	117.4	189.6
1994	7.0	8.5	27.8	2.2	45.5	86.5	132.0	1.574	46.4	87.2	133.6
1995	15.2	2.8	37.7	7.5	63.1	100.7	163.8	3.238	65.7	101.3	167.0
1996	13.9	6.9	22.4	7.1	50.3	63.0	113.3	2.864	52.7	63.5	116.2
1997	6.5	10.1	27.6	6.0	50.2	69.2	119.4	4.130	53.5	70.1	123.6
1998	17.5	9.6	40.0	6.4	73.5	87.7	161.2	2.049	75.0	88.2	163.3
1999	17.8	6.7	36.4	8.7	69.6	79.6	149.2	0.478	70.1	79.6	149.7
2000	12.6	11.1	48.4	18.0	90.0	69.0	159.0	0.676	90.7	69.0	159.7
2001	11.4	16.8	31.1	9.1	68.4	64.3	132.7	1.842	70.2	64.4	134.6
2002	13.3	4.4	24.6	10.0	52.3	63.3	115.6	2.403	54.6	63.3	118.0
2003	9.4	7.6	13.7	4.3	35.0	59.0	94.0	1.850	36.9	59.0	95.9
2004	12.6	11.3	29.4	4.9	58.1	55.8	113.9	1.511	59.6	55.8	115.5
2005	11.6	8.7	22.7	3.2	46.1	45.8	92.0	3.158	49.3	45.9	95.1
2006	10.5	5.0	35.8	13.5	64.7	40.9	105.6	2.463	67.2	40.9	108.0

Table 29. Estimated size of elver runs at East River-Sheet Harbour and East River-Chester, Nova Scotia.

Year	East R.-Sheet Harbour		East R.-Chester	
	Estimate	95%CI	Estimate	95%CI
1990	218,300			
1991	376,000			
1992	219,200			
1993	134,100			
1994	309,900	10,900		
1995	101,500	1,600		
1996	336,500	10,100	1,138,100	24,200
1997	467,400	7,000	1,419,000	52,100
1998	109,200	2,000	432,400	8,200
1999	134,600	600	441,700	9,800
2000			791,204	
2001			608,377	
2002			1,715,009	

Table 30. Arithmetic annual mean (±standard error) of American eels per 100 m^2 in the first sweep of electrofishing surveys in barriered and open sites in New Brunswick rivers that flow into the Bay of Fundy.

Year	Hammond				Kennebecasis				Keswick				Nashwaak - barrier				Nashwaak - open				Big Salmon			
	Eels/100 m^2			Survey	Eels/100 m^2			Survey	Eels/100 m^2			Survey	Eels/100 m^2			Survey	Eels/100 m^2			Survey	Eels/100 m^2			Survey
	Mean	SE	N	type[a]	Mean	SE	N	type	Mean	SE	N	type	Mean	SE	N	type	Mean	SE	N	type	Mean	SE	N	type
1979	1.89		1	B	1.44		1	B					2.68	0.50	5	B								
1980																								
1981	3.26	0.81	5	B	0.72	0.54	5	B					2.71	0.54	7	B								
1982	2.08	0.79	5	B	1.00	0.35	5	B					1.58	0.39	8	B								
1983	3.71	1.53	5	B	2.91	0.93	5	B					3.04	0.49	8	B								
1984	3.91	0.98	5	B	1.31	0.54	5	B					2.74	1.02	8	B								
1985	5.04	0.67	5	B	4.32	1.13	5	B					3.63	0.38	8	B								
1986	4.02	0.94	5	B	4.30	2.46	5	B					2.26	0.63	8	B								
1987					0.00		1	B					4.70		1	B								
1988	4.78	1.44	5	B	1.13	0.17	4	B					3.36	1.79	8	B								
1989	1.72	0.58	5	B	2.54	1.00	5	B					3.61	0.42	8	B								
1990	2.98	1.49	5	B	2.83	0.92	4	B					3.14	0.66	5	B								
1991	3.76	1.37	5	B	2.54	0.81	5	B					2.35	0.52	8	B	3.10		1	O				
1992									3.17	1.60	3	O	0.77	0.19	3	B	0.73	0.40	4	O				
1993									2.27	0.62	3	O					1.18	0.36	9	O				
1994	0.00	0.00	3	O	0.00		1	O	0.00	0.00	5	O					0.39	0.19	10	O				
1995									2.10	0.66	4	O					0.61	0.31	8	O				
1996	0.80	0.29	4	O	1.20		1	O	0.88	0.38	4	O					1.40	0.22	9	O	0.34	0.27	5	B
1997	0.95	0.31	4	O					0.48	0.15	4	O					1.03	0.23	9	O	4.38	1.60	4	B
1998	0.53	0.20	4	O	0.17	0.17	3	O	1.63	0.17	3	O					1.23	0.25	8	O				
1999	0.75	0.21	4	O	0.07	0.03	3	O	0.85	0.30	4	O					0.92	0.20	10	O	3.16	0.94	5	B
2000	0.00	0.00	2	O	0.13	0.13	3	O	0.17	0.12	3	O	0.93	0.00	3	B	1.38	0.33	9	O	2.98	1.06	4	B
2001	0.68	0.23	4	O					1.50	0.27	4	O	2.60	1.10	3	B	1.53	0.27	10	O	0.80	0.57	3	B
2002	0.25	0.06	4	O					1.73	0.65	4	O					1.38	0.35	9	O	1.62	0.67	5	B
2003	0.57	0.09	3	O					1.00	0.35	3	O	0.65	0.00	2	B	0.66	0.25	7	O	1.88	0.92	5	B
2004																	2.13	0.35	3	O	1.02	0.35	5	B
2005																	1.57	0.27	6	O	1.94	0.58	5	B

[a]B - barrier, O - open

Table 31. Arithmetic annual mean (±standard error) of American eels per 100 m^2 in the first sweep of electrofishing surveys in barriered and open sites in Nova Scotia rivers that flow into the Bay of Fundy and the Atlantic Ocean.

Year	Stewiacke				St. Marys - barrier				St. Marys - open				Lahave			
	Eels/100 m^2			Survey	Eels/100 m^2			Survey	Eels/100 m^2			Survey	Eels/100 m^2			Survey
	Mean	SE	N	type[a]	Mean	SE	N	type	Mean	SE	N	type	Mean	SE	N	type
1967													1.683	1.065		B
1968	21.57	6.285	6	B												
1969	21.13	5.564	6	B												
1970																
1971	17.18	5.194	6	B												
1972													1.606	0.623	5	B
1973													0.853	0.37	4	B
1974	9.899	2.847	6	B									1.684	0.261	5	B
1975													2.41	1.175	5	B
1976													0.415	0.24	3	B
1977													0.724	0.278	5	B
1978					7.607	2.185	8	B					0.803	0.284	5	B
1979					5.70	0.94	9	B								
1980					6.87	1.22	9	B					2.18	0.77	3	B
1981					6.61	1.56	8	B					2.03	1.08	3	B
1982					2.98	0.63	8	B					0.22	0.16	4	B
1983					7.79	1.04	8	B								
1984	6.59	1.00	11	O	11.55	8.87	7	B								
1985	6.76	1.20	15	O					6.89	1.12	8	O				
1986	6.34	1.51	20	O	4.89	1.23	7	B	6.48	0.57	9	O				
1987	9.78	2.28	22	O	8.00	1.32	9	B								
1988	15.74	2.49	20	O	7.65	1.58	7	B								
1989	10.50	2.37	17	O												
1990	8.68	1.84	24	O												
1991	5.87	0.74	30	O												
1992	5.62	0.94	28	O												
1993	6.02	0.84	30	O												
1994	4.90	0.76	30	O												
1995	5.81	0.96	26	O					6.61	1.20	10	O	0.81	0.17	4	O
1996									3.51	0.70	8	O				
1997	9.54	1.51	27	O					5.04	0.75	10	O	1.60	0.58	4	O
1998	6.98	1.08	28	O					8.45	1.37	10	O				
1999	7.08	1.84	21	O					5.42	1.19	10	O				
2000	2.34	0.56	20	O					1.66	0.23	10	O	3.64	0.36	2	O
2001	0.90	0.11	9	O					1.68	0.48	6	O	1.90	0.60	2	O
2002	1.71	0.45	16	O					1.40	0.32	8	O	1.86	0.37	3	O
2003	1.90	0.31	26	O					1.83	0.60	6	O	0.57	0.11	4	O
2004									0.47	0.12	6	O	0.46	0.25	3	O

[a]B - barrier, O - open

Table 32. Age frequency distributions of American eels in the Scotia-Fundy area. Eels are considered to be age 0 in their year of arrival in continental waters.

Province	NB	NB	NB	NS	NS	NS	NS	NS	NS
Region	Saint John R.	Saint John R.	Saint John R.	Western	Western	Western	Western	Western	Western
Site	Mactaquac below dam	French-Indian L.	Grand Lake	R. Grosses Coques	Meteghan R.	Salmon R.	Beaver R.	Near Small Gains Rd.	Various
Coordinates				44°22.47'N 66°04.47'W	44°12.71'N 66°07.88'W	44°03.29'N 66°09.17'W	43°59.89'N 66°08.73'W	43°50.48'N 66°03.47'W	
Habitat	River	Lake	Lake	River	River	River	River	River	River
Stage	Yellow, silver	Yellow, silver	Yellow, silver	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Year	1991	1991	1991	2006	2006	2006	2006	2006	2006
Gear	Fyke			E-fishing	E-fishing	E-fishing	E-fishing	E-fishing	E-fishing
Exploited	Yes			No	No	No	No	No	No
Size sampled	All	All	All	All	All	All	All	All	All
Source	B. Jessop, DFO	B. Jessop, DFO	B. Jessop, DFO	K. Oliveira, unpubl.	K. Oliveira, unpubl.	K. Oliveira, unpubl.	K. Oliveira, unpubl.	K. Oliveira, unpubl.	K. Oliveira, unpubl.
Length (cm)									
Mean	38.8	44.4	38.8	30.8	26.4	28.3	29.7	24.8	27.9
SD	4.7	5.9	8.7	3.6	3.7	5.2	4.2	9.9	5.6
N	51	51	211	8	24	23	20	11	86
Age (years)									
Mean	13.8	15.9	14.8	9.5	6.8	7.6	7.9	6.5	7.5
SD	2.8	4.2	3.6	1.8	1.6	2.0	2.3	4.2	2.4
N	51	51	211	8	24	23	20	11	86
0									
1								2	2
2									
3					1			1	2
4							1	1	2
5					4	2	1		7
6					3	5	5	2	15
7		1	1	1	10	6	2	1	20
8	1		4	2	3	4	5	1	15
9	1		3	1	2	3	2		8
10	3	2	7	1		2	1		4
11	5	6	18	2	1		1	1	5
12	7	3	23	1			1	1	3
13	9	2	29				1	1	2
14	6	4	28			1			1
15	4	8	14						
16	8	4	20						
17	1	6	23						
18	3	4	14						
19	1	2	8						
20	1	1	4						
21	1	3	8						
22									
23			1						
24		3	2						
25		1							
26		1	2						
27			1						
28									
29									
30			1						
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									

Table 32 (continued)

Province	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Region	Western	Western	South Shore	South Shore	South Shore	South Shore	South Shore	South Shore	South Shore	Halifax & Lunenburg Cos.
Site	Eel Brook	Gaspereau Brook	Medway River	Medway River	Medway River	East R. Chester	East R. Chester	East R. Chester	LaHave R.	Bridge End and Wentzells Lakes
Coordinates										
Habitat	River	River	River	River	River	River	River	River	River	Lake
Stage	Yellow	Yellow	Yellow females	Silver females	Silver males	Yellow	Silver males	Silver females	Silver females	Yellow
Year	1983	1983	1983	1983	1983	2001	1998	1998	1983	1979
Gear	Weir	Trap/pot	Weir	Weir	Weir	E-fishing	Weir	Weir	Weir	Pots
Exploited	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	
Size sampled	All	All	All	All	All	Stratified	All	All	All	All
Source	Jessop 1987	Jessop 1987	Jessop 1987	Jessop 1987	Jessop 1987	Jessop et al. 2006	Jessop et al. 2002	Jessop et al. 2002	Jessop 1987	Hutchison and Taylor 1980
Length (cm)										
Mean	50.9	50.4	53.1	55.4	39.2		35.5	46.8	60.9	52.5
SD	6.9	6.9	9.0	10.0	4.6		1.8	8.7	10.5	14.7
N	118	46	19	273	7		35	27	352	19
Age (years)										
Mean	12.9	14.8	16.9	19.2	12.7	10.5	15.5	17.5	19.3	9.7
SD	2.7	2.7	3.7	4.7	3.6	3.1	3.0	4.7	5.6	3.8
N	118	46	19	273	7	107	35	27	352	19
0										
1										
2										
3										
4										2
5						5				
6					1	3				3
7	2		1			5				
8	3			1		13			1	2
9	8			1		16				5
10	7			4		18	1		9	
11	12	7		2		14	3	1	6	
12	23	3	1	9	2	11	1	1	11	1
13	14	6		10	1	10	5	2	13	2
14	17	6	2	15	2	3	4	2	27	2
15	12	7	2	21		3	4	3	27	
16	9	4	3	24			5	5	19	2
17	7	6	1	23			5	4	24	
18	3	4	1	24	1	3	1	1	47	
19			3	18		1	1	3	27	
20		2	2	13		1	3	1	21	
21			1	23			1		19	
22	1	1	2	14		1	1	1	18	
23				17					15	
24				17					8	
25				14					7	
26				7					9	
27				4					10	
28				6				1	10	
29				1				2	5	
30				2					4	
31				1					3	
32									4	
33									3	
34				1					1	
35									1	
36										
37										
38									1	
39				1						
40										
41										
42									1	
43									1	

Table 33. Reported landings (t) of American eels in Newfoundland and Labrador by region and district.. Data from Knight (1997) and from DFO Statistics Branch.

Year	Northeast and east coasts							South coast				West coast						Labrador	Total
	A	B	C	D	E	F	Total	G	H	I	Total	J	K	L	M	N	Total	O	
1961							0.0				0.0		0.3				0.3		0.3
1962				12.5	4.6		17.1	3.4	1.8	1.2	6.4						0.0		23.5
1963			0.2	8.8			9.0	3.0	14.8	10.2	28.0						0.0		37.0
1964			1.3				1.3		3.7	7.0	10.7	1.0					1.0		13.0
1965							0.0		2.4	0.9	3.3						0.0		3.3
1966							0.0				0.0						0.0		0.0
1967							0.0				0.0						0.0		0.0
1968							0.0				0.0						0.0		0.0
1969							0.0				0.0						0.0		0.0
1970							0.0				0.0						0.0		0.0
1971							0.0	1.0			1.0	4.0	36.0			3.0	43.0		44.0
1972							0.0				0.0	17.0	52.0	10.0			79.0		79.0
1973				4.0			4.0				0.0	5.0	22.0				27.0		31.0
1974							0.0				0.0	19.0	2.0				21.0		21.0
1975				0.5			0.5				0.0	7.1	0.3				7.4		7.4
1976	3.1	1.5					4.6				0.0	6.2	0.5				6.7		11.3
1977	6.2	0.5				2.8	9.5		2.1		2.1		7.7				7.7		19.3
1978	0.3				0.9		1.2				0.0		14.5				14.5		15.7
1979	0.4				1.2		1.6	2.1			2.1		19.6	0.1			19.7		23.4
1980	0.3	0.3	0.5	3.0	2.9	2.8	9.8	2.4			2.4	0.0	44.9	0.1	25.5		70.5		82.7
1981		4.6	2.0	0.7	0.5	0.1	7.9	1.1	0.3	1.1	2.5	3.7	13.5	0.1	13.9		31.2		41.5
1982		8.5	7.1				15.6				0.0		20.3	0.1	0.7		21.1		36.7
1983		5.4	3.3				8.7				0.0	2.2	16.9	0.2			19.3		28.0
1984			12.1				12.1				0.0		1.3	0.6			1.9		14.0
1985		0.4	9.0				9.4		0.1		0.1		2.7	6.9	1.6		11.2	4.3	25.0
1986		0.2	8.2	0.5	1.8		10.7	0.5			0.5		7.9	0.5	5.3	1.6	15.3		26.6
1987		6.5	11.9	0.2	4.1		22.7	1.1	0.1		1.2		5.4	1.1	0.2		6.7		30.6
1988	0.1	16.0	27.6	1.0	8.5		53.2		3.4	1.3	4.7		1.8	0.8	0.4		3.0		60.8
1989	0.8	11.5	21.5	2.3	4.5		40.6		0.4	0.5	0.9		24.1	0.6	8.1	9.1	41.9		83.5
1990	5.3	26.1	27.2	4.8	10.3		73.7	0.5	2.4	0.2	3.1	4.1	40.0	1.0	15.7	9.3	70.1		146.6
1991	3.7	23.0	14.4	3.9	5.8		50.8	0.3	4.2	0.9	5.4	3.3	62.5	0.5	4.6	6.8	77.7		133.9
1992	0.4	13.6	11.1	5.2	4.0		34.3	1.3	2.9		4.2	5.3	40.0	0.4	4.5	1.3	51.5		89.9
1993	3.6	18.1	18.9	4.2	6.5		51.3	1.9	1.5	0.4	3.8	22.3	26.3	2.3	6.9	3.0	60.8	0.1	116.1
1994	3.8	18.4	15.3	6.3	5.4		49.2	2.7	4.7	1.3	8.7	6.0	31.1	0.3	11.1	4.6	53.1		110.9
1995	3.8	14.7	9.0	6.1	5.2	0.4	39.2	0.8	1.6	1.7	4.1	2.3	23.2	1.3	9.0	6.3	42.1		85.4
1996	4.2	23.8	9.1	5.6	5.8	0.9	49.5	1.1	3.4	3.0	7.4	3.5	18.3	0.4	7.0	8.2	37.5		94.41
1997	1.9	14.7	10.0	3.8	6.0	1.4	37.9	0.6	4.0	2.2	6.8	2.3	8.4	1.7	9.4	5.1	27.0		71.74
1998	2.0	17.5	13.0	4.6	6.3	1.4	44.9	0.3	2.5	1.3	4.1	1.6	9.3	0.1	8.5	4.4	23.9		72.95
1999	1.4	12.9	12.4	3.4	6.4	1.4	37.9		2.0		2.0	1.9	6.3		3.3	3.3	14.7		54.53
2000	7.4	11.6	16.6	3.7	4.7	0.7	44.7	0.8	2.8		3.7	2.8	1.4		13.0	4.3	21.5		69.79
2001	0.3	8.4	9.6	2.0	4.7	0.1	25.1	0.9	0.8		1.7	3.3	4.1		1.6	0.9	9.9		36.69
2002	1.5	8.8	12.7	1.3	6.4	0.9	31.6	0.3			0.3	3.5	16.6		9.4	4.1	33.6		65.49
2003	0.0	14.2	5.6	1.6	9.2		30.5	1.0	0.6		1.6	0.2	14.0	10.2	4.6	3.4	32.4		64.57
2004	0.8	14.8	7.6	0.9	3.1		27.3	0.3	1.3		1.7	7.2	13.8		9.9	4.2	35.1		64.09
2005	0.5	11.3	9.2	1.2	7.6		29.9	0.4	2.1		2.5	3.4	15.6		15.1	4.6	38.7		71.08
2006		10.5	8.8	3.1	8.7		31.1	0.9	1.7	0.5	3.2	3.4	12.7		7.6	15.6	39.4		73.64

Table 34. Catch rates of American eels in fyke nets in Western Brook, Newfoundland. Data from Dietrich 2001.

Year	May				June				July				All months			
	Eels caught	Gear-days	Gear location[a]	Eels/ gear-day	Eels caught	Gear-days	Gear location[a]	Eels/ gear-day	Eels caught	Gear-days	Gear location[a]	Eels/ gear-day	Eels caught	Gear-days	Gear location[a]	Eels/ gear-day
1998	79	10	60	7.90	116	30	60	3.87	30	29	60	1.03	225	69	60	3.26
1999					239	75	60	3.19	21	93	60	0.23	260	168	60	1.55
2000					653	78	330	8.37	201	145	330	1.39	854	223	330	3.83
Mean				7.90				5.14				0.88				2.88

[a]Distance (m) downstream from Western Brook Pond

Table 35. Age frequency distributions of American eels in Newfoundland. Eels are considered to be age 0 in their year of arrival in continental waters.

Site	Salmon R.	Burnt Berry Brk.	Indian Pond	Dog Bay	Topsail Barachois	Topsail Pond	Holyrood Bay
Habitat	Stream	Stream	Brackish pond	River mouth	Brackish pond	Fresh pond	River mouth
Main stage	Yellow	Yellow	Yellow	Silver	Yellow	Silver	Silver
Year	1968	1967	1967	1981	1967	1967	1981
Gear	Smolt trap	E-fishing	Pots	Fyke	Pots	Fyke	Fyke
Exploited				Yes		No	Some
Source	Gray and Andrews 1971	Gray and Andrews 1971	Gray and Andrews 1971	Bouillon and Haedrich 1985	Gray and Andrews 1971	Gray and Andrews 1971	Bouillon and Haedrich 1985
Age (years)							
Mean	6.7	5.7	8.7	13.0	8.0	12.3	12.9
SD	1.5	2.0	1.6	1.6	1.5	1.6	1.6
N	38	66	75	94	135	92	90
0							
1							
2		2					
3		6					
4	3	13			2		
5	7	13	2		5		
6	6	15	6		19		
7	9	3	10		20		
8	11	6	13		27		
9	1	5	15	1	45	5	2
10	1	2	20	3	12	5	3
11		1	7	11	4	13	11
12			2	21	1	34	21
13				27		20	22
14				16		6	20
15				12		6	5
16						1	3
17				2		1	3
18				1		1	
19							
20							
21							
22							

Table 36. Reported landings of American eels in North America, in metric tonnes. US landings are from http://www.st.nmfs.gov/st1/commercial/landings/annual_landings.html. Data for 2006 are preliminary. Landings for Newfoundland and Labrador for 1950-1960 are unavailable.

Year	On-	Quebec			Southern Gulf of St. Law.				Scotia-Fundy			Nfld. & Lab.			Canada	US	North
	tario	Yellow	Silver	Tot.	NB	NS	PEI	Tot.	NS	NB	Tot.	Nfld	Lab	Tot.			America
1950	13	10	289	299	22	24	2	48	21	19	39					955	
1951	22	12	339	350	16	21	4	40	25	3	28					833	
1952	29	13	378	391	16	12	5	33	35	9	44					734	
1953	26	12	390	403	13	8	6	27	41	21	62					641	
1954	35	15	338	352	33	6	4	43	51	10	61					546	
1955	31	19	382	400	49	11	9	68	67	40	107					628	
1956	19	14	380	394	11	15	5	30	48	2	51					656	
1957	45	15	545	560	9	10	12	31	22	5	27					572	
1958	54	23	454	477	15	14	19	47	39	7	46					631	
1959	56	20	368	388	24	11	26	61	20	0	20					603	
1960	50	20	442	462	31	24	32	86	22	1	22					405	
1961	59	23	359	382	57	28	18	103	25	9	34	0	0	0	577	380	957
1962	49	29	354	383	82	26	13	121	25	9	33	24	0	24	611	290	901
1963	77	29	440	468	54	24	16	93	41	13	54	37	0	37	729	440	1,169
1964	111	30	417	447	56	19	34	109	43	10	53	13	0	13	734	472	1,205
1965	86	30	518	548	63	16	49	128	27	5	32	3	0	3	796	709	1,505
1966	65	28	459	488	99	15	33	147	28	20	48	0	0	0	748	580	1,327
1967	62	27	408	436	108	52	62	222	14	4	18	0	0	0	737	724	1,461
1968	78	30	468	498	151	28	131	310	22	12	34	0	0	0	920	769	1,689
1969	77	28	485	513	214	38	195	447	24	60	84	0	0	0	1,120	849	1,969
1970	66	10	304	314	295	45	240	580	29	54	83	0	0	0	1,043	979	2,022
1971	76	6	307	313	319	52	351	723	49	67	116	44	0	44	1,273	1,109	2,381
1972	123	30	279	309	273	50	273	596	25	35	60	79	0	79	1,167	712	1,879
1973	85	22	278	301	220	28	157	406	20	27	47	31	0	31	870	591	1,461
1974	101	28	360	389	156	28	101	286	14	21	35	21	0	21	830	1,388	2,218
1975	168	27	498	525	121	29	104	253	12	52	64	8	0	8	1,018	1,607	2,625
1976	155	34	384	418	119	18	94	231	9	78	87	11	0	11	902	1,117	2,019
1977	188	24	483	507	110	6	98	214	9	100	109	19	0	19	1,037	953	1,990
1978	231	29	497	525	82	12	114	208	52	44	96	16	0	16	1,075	1,615	2,690
1979	223	28	477	505	102	13	111	226	21	76	97	23	0	23	1,075	1,793	2,868
1980	165	25	570	595	150	10	120	280	31	24	55	83	0	83	1,178	1,459	2,637
1981	109	31	569	600	191	8	220	419	20	35	55	42	0	42	1,224	1,369	2,593
1982	29	25	357	381	159	11	168	338	17	3	20	37	0	37	805	1,005	1,811
1983	76	25	327	352	97	10	151	258	19	0	19	28	0	28	732	839	1,572
1984	123	31	381	412	122	9	165	296	8	3	11	14	0	14	856	1,117	1,973
1985	105	0	389	389	202	5	139	347	7	73	80	21	4	25	946	828	1,774
1986	117	27	413	440	230	16	226	472	6	55	61	27	0	27	1,117	1,001	2,117
1987	104	21	398	419	172	13	150	335	14	49	63	31	0	31	951	718	1,669
1988	106	20	404	424	234	25	125	383	14	135	149	61	0	61	1,123	573	1,696
1989	122	28	402	430	209	30	70	309	6	116	122	83	0	83	1,067	747	1,814
1990	120	34	440	474	149	21	124	294	6	90	96	147	0	147	1,130	695	1,826
1991	118	30	364	395	130	35	127	292	39	88	127	134	0	134	1,065	753	1,818
1992	124	25	298	322	120	56	54	230	53	70	123	90	0	90	889	660	1,548
1993	106	21	309	330	88	89	74	252	72	117	190	116	0.1	116	993	712	1,705
1994	83	21	262	282	68	42	46	156	46	87	134	111	0	111	766	706	1,472
1995	63	23	255	278	60	16	35	111	66	101	167	85	0	85	705	594	1,299
1996	57	30	214	244	49	11	36	96	53	63	116	94	0	94	608	459	1,067
1997	41	27	175	202	36	17	31	85	54	70	124	72	0	72	523	427	949
1998	19	23	205	228	49	15	24	88	75	88	163	73	0	73	571	461	1,033
1999	19	20	158	178	47	9	35	91	70	80	150	55	0	55	493	459	951
2000	27	37	155	192	76	7	63	147	91	69	160	70	0	70	596	391	987
2001	26	35	139	174	92	3	41	137	70	64	135	37	0	37	508	394	902
2002	11	35	133	168	129	4	86	220	55	63	118	65	0	65	582	291	873
2003	13	31	106	138	140	9	71	220	37	59	96	65	0	65	531	461	992
2004	0	38	103	141	123	4	69	196	60	56	115	64	0	64	517	332	849
2005	0	21	98	119	102	7	81	191	49	46	95	71	0	71	476	396	872
2006	0	10	95	105	95	10	69	174	67	41	108	74	0	74	460	338	799

Table 37. Landed values American eels in Canada, from DFO Statistics Branch (http://www.dfo-mpo.gc.ca/communic/statistics/commercial/index_e.htm). Conversion to 2004 dollars is from the Canadian Consumer Price Index (http://www40.statcan.ca/l01/cst01/econ46.htm).

Year	Landed value (1,000s of dollars)							Landed value (1,000s of dollars), in 2004 dollars						
	Ont	Que	NB	NS	PEI	Nfld & Lab	Canada	Ont	Que	NB	NS	PEI	Nfld & Lab	Canada
1980	455	1,940	219	51	145	19	2,829	1,082	4,613	521	121	345	45	6,727
1981	260	1,829	358	50	364	43	2,904	550	3,869	757	106	770	91	6,143
1982	39	749	281	47	281	47	1,444	74	1,429	536	90	536	90	2,755
1983	111	770	164	46	226	36	1,353	200	1,388	296	83	408	65	2,440
1984	226	1,090	197	32	272	20	1,837	391	1,884	340	55	470	35	3,175
1985	236	1,385	613	24	255	18	2,531	392	2,301	1,018	40	424	30	4,205
1986	283	1,996	738	49	558	52	3,676	451	3,185	1,178	78	891	83	5,865
1987	247	2,277	781	91	467	105	3,969	378	3,482	1,194	139	714	161	6,067
1988	236	2,114	1,332	129	351	219	4,381	347	3,106	1,957	190	516	322	6,438
1989	362	1,683	1,423	94	212	308	4,083	507	2,357	1,992	132	297	431	5,716
1990	225	2,545	1,018	26	390	560	4,765	300	3,399	1,360	34	521	748	6,363
1991	430	2,590	918	74	426	564	5,002	544	3,277	1,161	93	539	714	6,328
1992	526	2,057	808	118	184	390	4,083	655	2,563	1,007	147	229	486	5,088
1993	193	1,822	1,062	657	246	485	4,465	236	2,231	1,299	804	301	593	5,465
1994	241	1,809	1,117	548	220	469	4,404	294	2,210	1,364	669	269	573	5,380
1995	281	1,943	1,296	1,440	203	431	5,594	336	2,323	1,550	1,722	243	515	6,689
1996	289	2,113	914	1,545	224	579	5,664	340	2,486	1,075	1,818	264	681	6,664
1997	206	1,568	1,567	2,130	241	446	6,158	239	1,816	1,815	2,467	279	516	7,131
1998	62	1,673	606	718	115	417	3,591	71	1,919	695	824	132	478	4,120
1999	65	1,469	530	254	179	332	2,829	73	1,656	598	286	202	374	3,190
2000	138	1,706	689	468	328	341	3,670	151	1,873	756	514	360	374	4,029
2001	172	1,386	851	763	230	139	3,541	184	1,484	911	817	246	149	3,790
2002	85	1,297	700	620	297	265	3,264	89	1,358	733	649	311	277	3,418
2003	85	1,037	821	474	269	269	2,955	87	1,057	836	483	274	274	3,011
2004	1	[a]	855	889	306	232	2,283	1	[a]	855	889	306	232	2,283

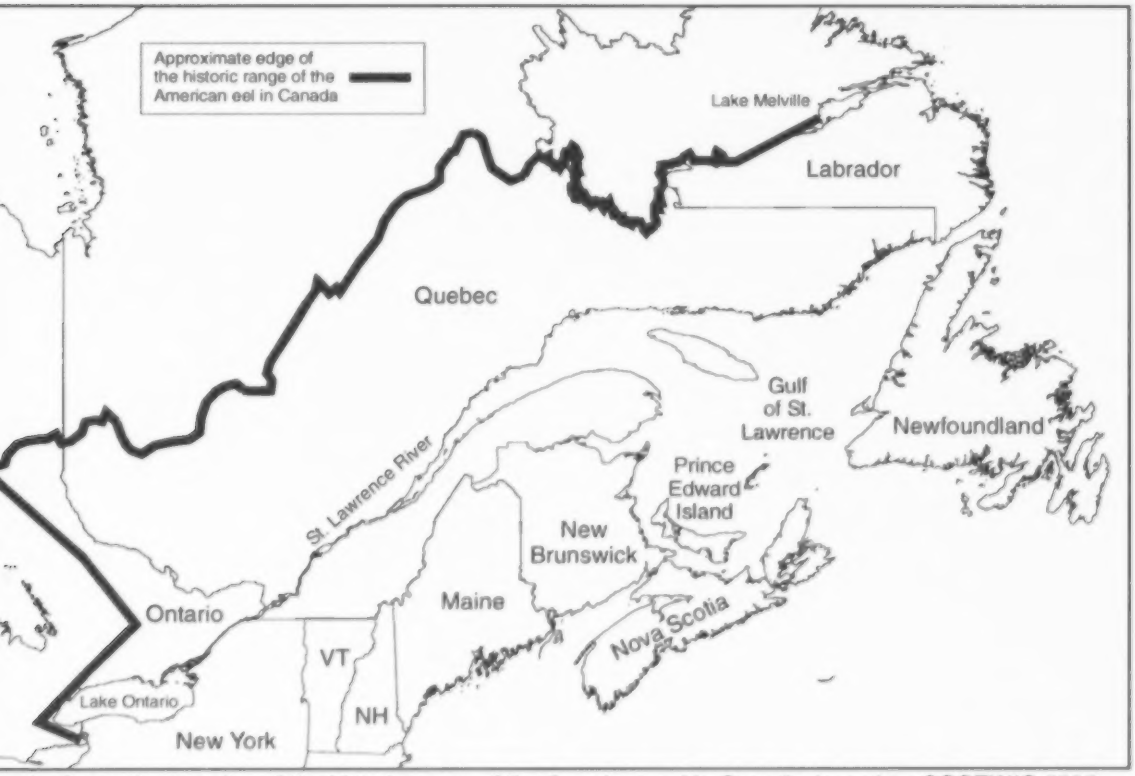
[a]Data not available

Table 38. Mean price per kg paid to fisheries for American eels in Canada, calculated from DFO Statistics Branch (http://www.dfo-mpo.gc.ca/communic/statistics/commercial/index_e.htm). Conversion to 2004 dollars is from the Canadian Consumer Price Index (http://www40.statcan.ca/l01/cst01/econ46.htm).

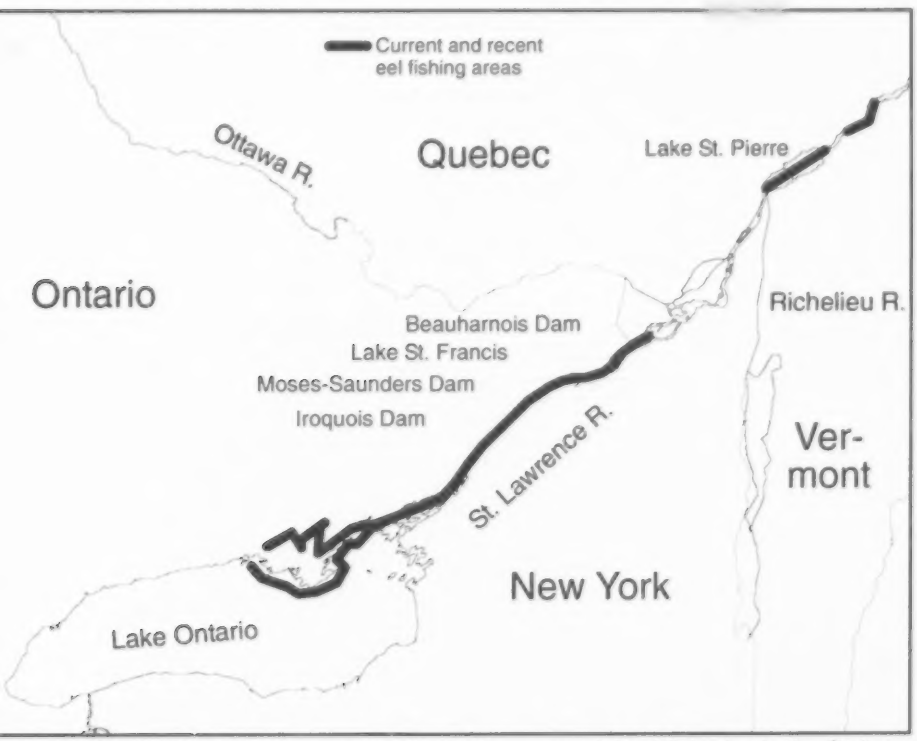
Year	Mean price per kg								Mean price per kg, in 2004 dollars							
	Ont	Que	NB	NS	PEI	Nfld & Lab	Canada	Canada, no elvers[a]	Ont	Que	NB	NS	PEI	Nfld & Lab	Canada	Canada, no elvers[a]
1980	2.69	3.22	1.24	0.98	1.20	0.23	2.35	2.35	6.40	7.65	2.96	2.33	2.85	0.55	5.59	5.59
1981	2.34	3.03	1.58	1.85	1.65	1.05	2.36	2.36	4.96	6.42	3.34	3.92	3.48	2.22	4.99	4.99
1982	1.22	2.22	1.76	1.88	1.67	1.27	1.90	1.90	2.33	4.24	3.35	3.59	3.19	2.42	3.63	3.63
1983	1.59	2.18	1.67	1.53	1.51	1.29	1.86	1.86	2.86	3.93	3.02	2.76	2.72	2.32	3.35	3.35
1984	1.98	2.51	1.54	1.88	1.65	1.43	2.11	2.11	3.43	4.34	2.66	3.25	2.85	2.47	3.64	3.64
1985	2.25	3.10	1.79	2.18	1.82	1.64	2.39	2.39	3.73	5.15	2.97	3.62	3.03	2.72	3.98	3.98
1986	2.40	4.02	2.21	2.42	2.47	1.96	3.01	3.01	3.83	6.41	3.52	3.86	3.94	3.12	4.80	4.80
1987	2.38	4.14	2.98	3.25	3.11	3.44	3.53	3.53	3.63	6.32	4.56	4.96	4.76	5.25	5.39	5.39
1988	2.34	4.39	3.11	3.34	2.82	3.61	3.55	3.55	3.43	6.44	4.57	4.91	4.14	5.30	5.21	5.21
1989	2.94	3.31	3.26	2.91	2.76	3.69	3.24	3.24	4.12	4.63	4.56	4.07	3.86	5.16	4.53	4.53
1990	2.59	4.28	3.24	1.00	3.15	3.82	3.69	3.91	3.45	5.72	4.33	1.34	4.21	5.11	4.93	5.22
1991	3.31	4.61	3.18	1.00	3.37	4.21	3.80	4.21	4.18	5.84	4.02	1.26	4.26	5.32	4.81	5.33
1992	4.17	4.60	3.49	1.00	3.38	4.34	3.83	4.40	5.20	5.73	4.35	1.25	4.21	5.40	4.77	5.48
1993	2.19	4.04	3.52	4.12	3.34	4.18	3.75	3.77	2.68	4.94	4.30	5.05	4.09	5.11	4.59	4.61
1994	3.39	4.54	3.51	3.87	4.81	4.23	4.06	4.37	4.15	5.54	4.29	4.72	5.87	5.17	4.95	5.34
1995	4.39	5.41	7.41	10.70	5.87	4.96	6.55	5.25	5.25	6.47	8.87	12.80	7.02	5.94	7.84	6.28
1996	5.07	6.00	6.05	18.51	6.27	6.13	7.32	5.94	5.97	7.05	7.12	21.78	7.38	7.22	8.61	6.99
1997	4.68	5.45	6.55	26.34	5.49	6.22	8.03	5.50	5.42	6.32	7.58	30.50	6.36	7.20	9.29	6.37
1998	2.82	4.85	4.38	8.00	4.89	5.72	5.19	4.89	3.23	5.57	5.03	9.18	5.61	6.56	5.96	5.61
1999	3.00	4.88	3.28	2.99	5.12	6.09	4.29	4.96	3.38	5.50	3.70	3.37	5.78	6.86	4.84	5.59
2000	4.67	5.87	3.21	4.80	4.15	5.45	4.74	5.44	5.13	6.44	3.53	5.27	4.55	5.99	5.21	5.97
2001	5.93	5.14	4.00	10.30	3.75	3.79	5.18	4.86	6.35	5.50	4.29	11.03	4.01	4.05	5.55	5.20
2002	5.31	6.25	3.91	10.54	3.44	4.05	5.32	5.18	5.56	6.55	4.10	11.04	3.60	4.24	5.58	5.42
2003	5.67	6.87	4.14	10.27	3.79	4.17	5.41	5.50	5.77	7.00	4.22	10.47	3.86	4.24	5.52	5.61
2004	[b]	[b]	4.62	14.11	4.43	4.76	6.24	4.58	[b]	[b]	4.62	14.11	4.43	4.76	6.24	4.58

[a]Excludes data from Nova Scotia and New Brunswick in 1989-2004, when the elver fishery operated.

[b]No fishery or data not available



g. 1. Approximate edge of the historic range of the American eel in Canada, based on COSEWIC 2006.



g. 2. Approximate areas of current and recent commercial eel fisheries in the St. Lawrence system upstream of the uebec City area. Data from John Casselman, Queens University; Yves Mailhot, Pierre Dumont, Pierre Pettigrew and uy Verreault, MNRF; pers. comm.

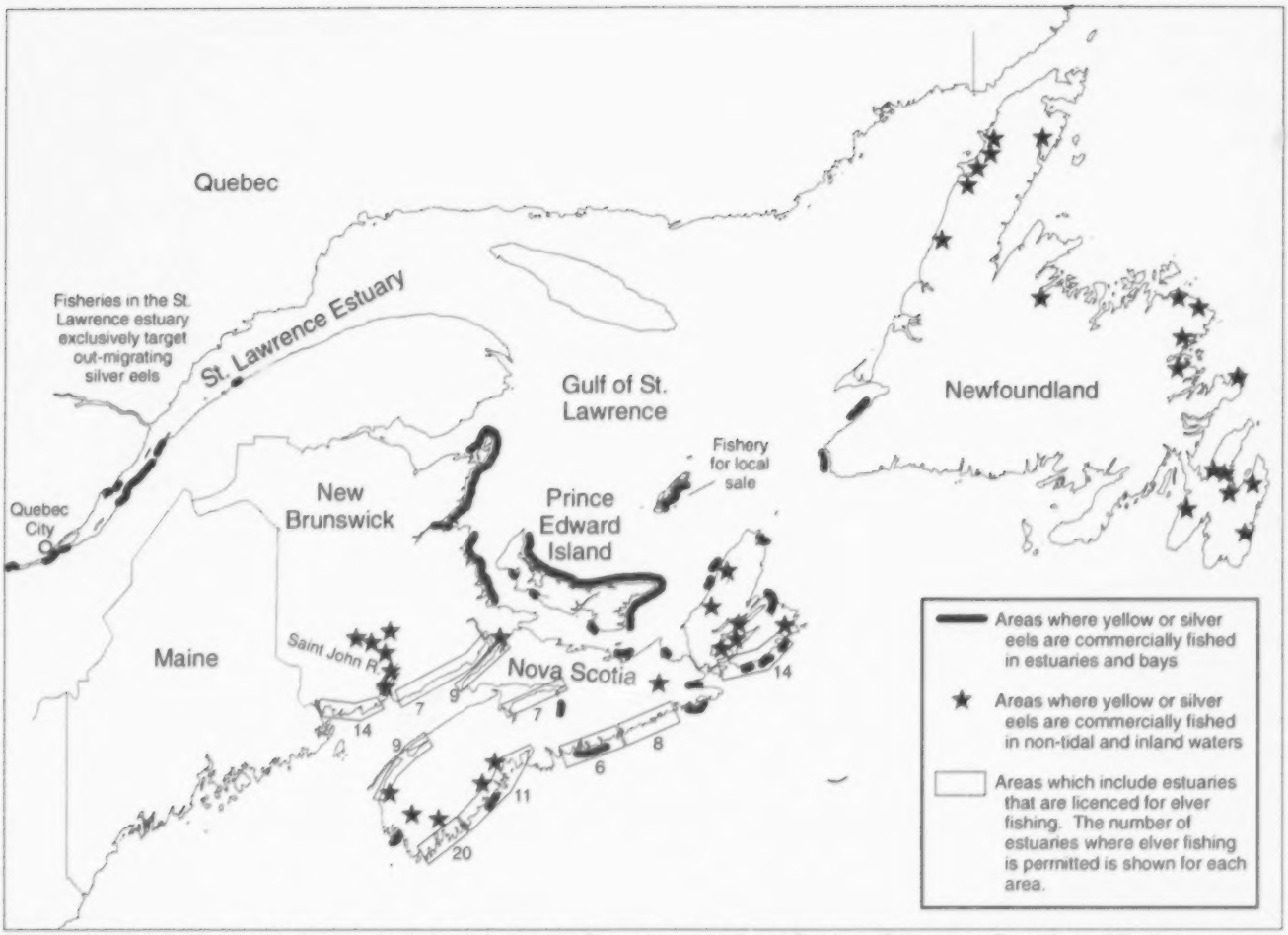


Fig. 3. Approximate areas of commercial eel fishing in Canada east of the Quebec City area. Data from Mitchel Feigenbaum and Paul Firminger, South Shore Trading Limited; François Caron, Stan Georges, and Rémi Tardif, MNRF; David Cairns, Brian Jessop, and Greg Stevens, DFO; pers. comm.

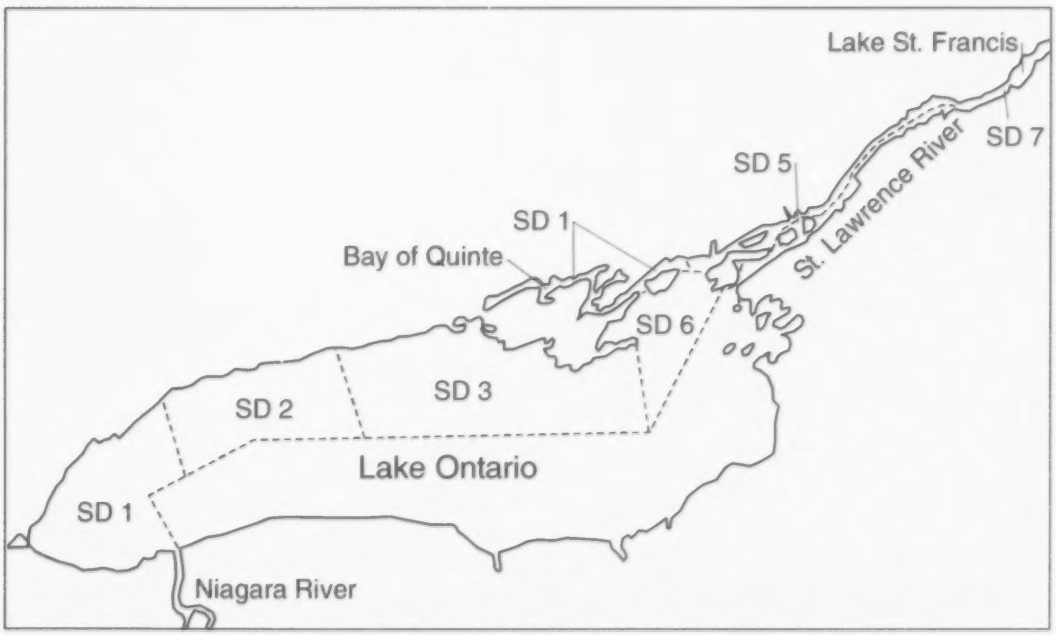


Fig. 4. Lake Ontario and the upper St. Lawrence River, showing Statistical Districts.

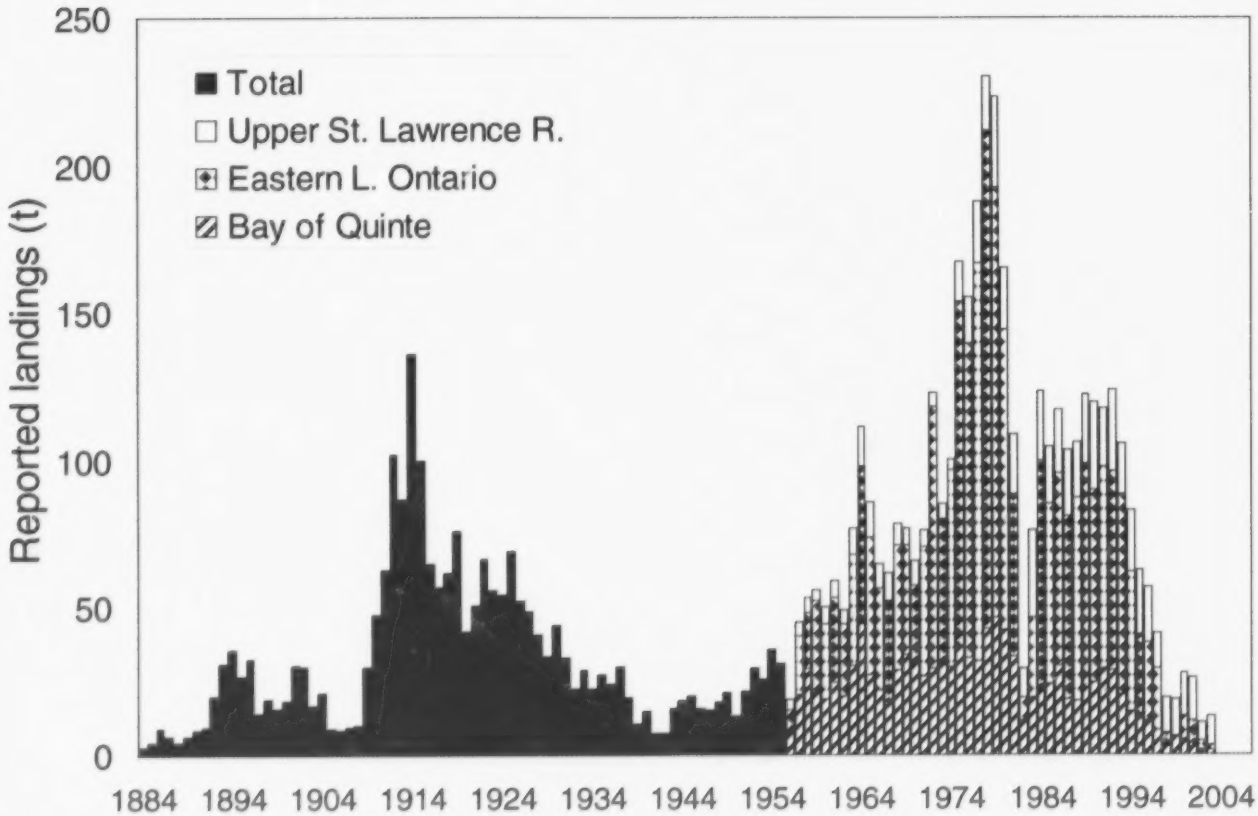


Fig. 5. Reported landings of American eels in Ontario. Geographic breakdown of landings is unavailable for 1884-1955.

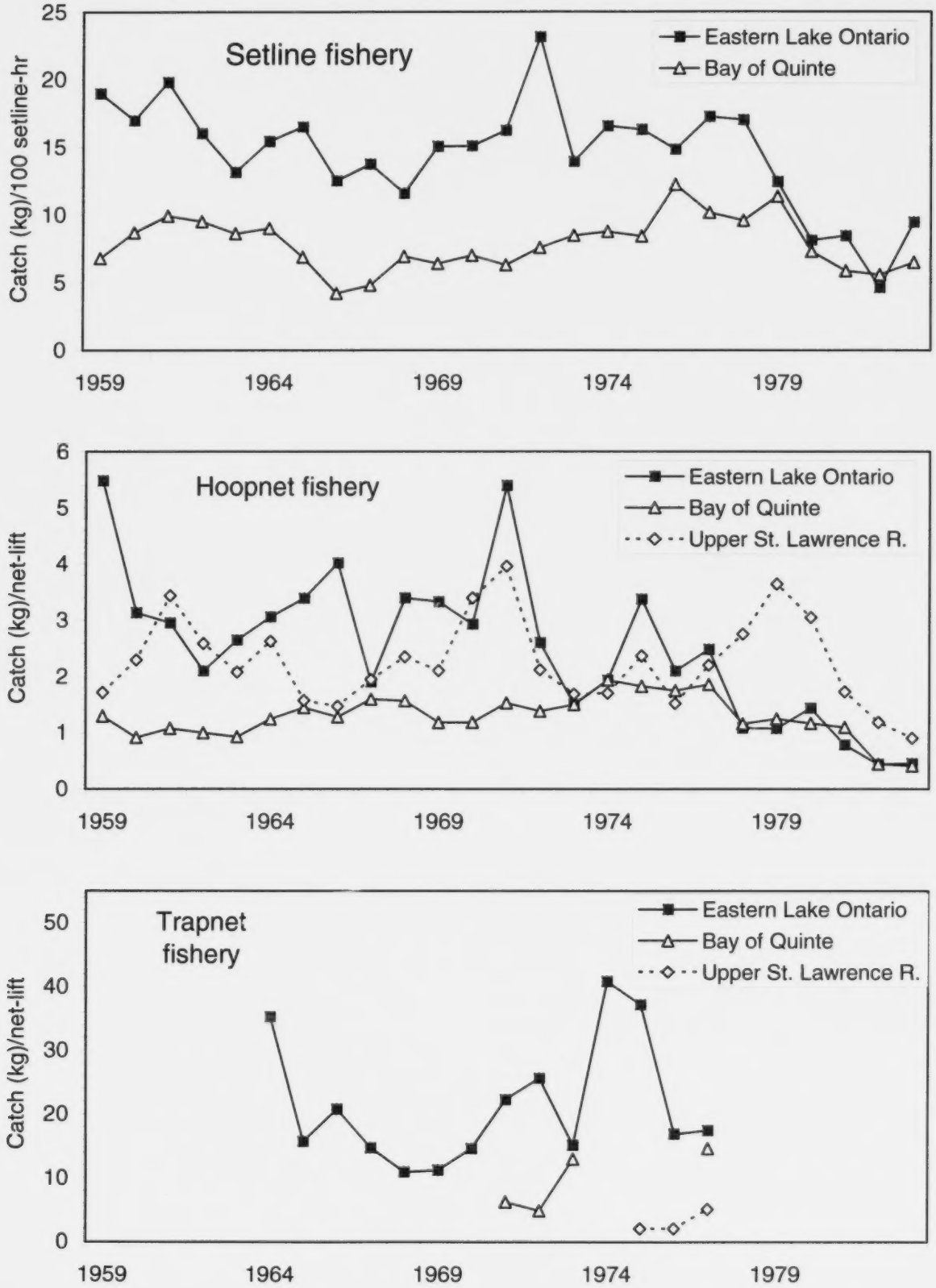


Fig. 6. Commercial CPUE for American eels in Ontario, 1959-1983.

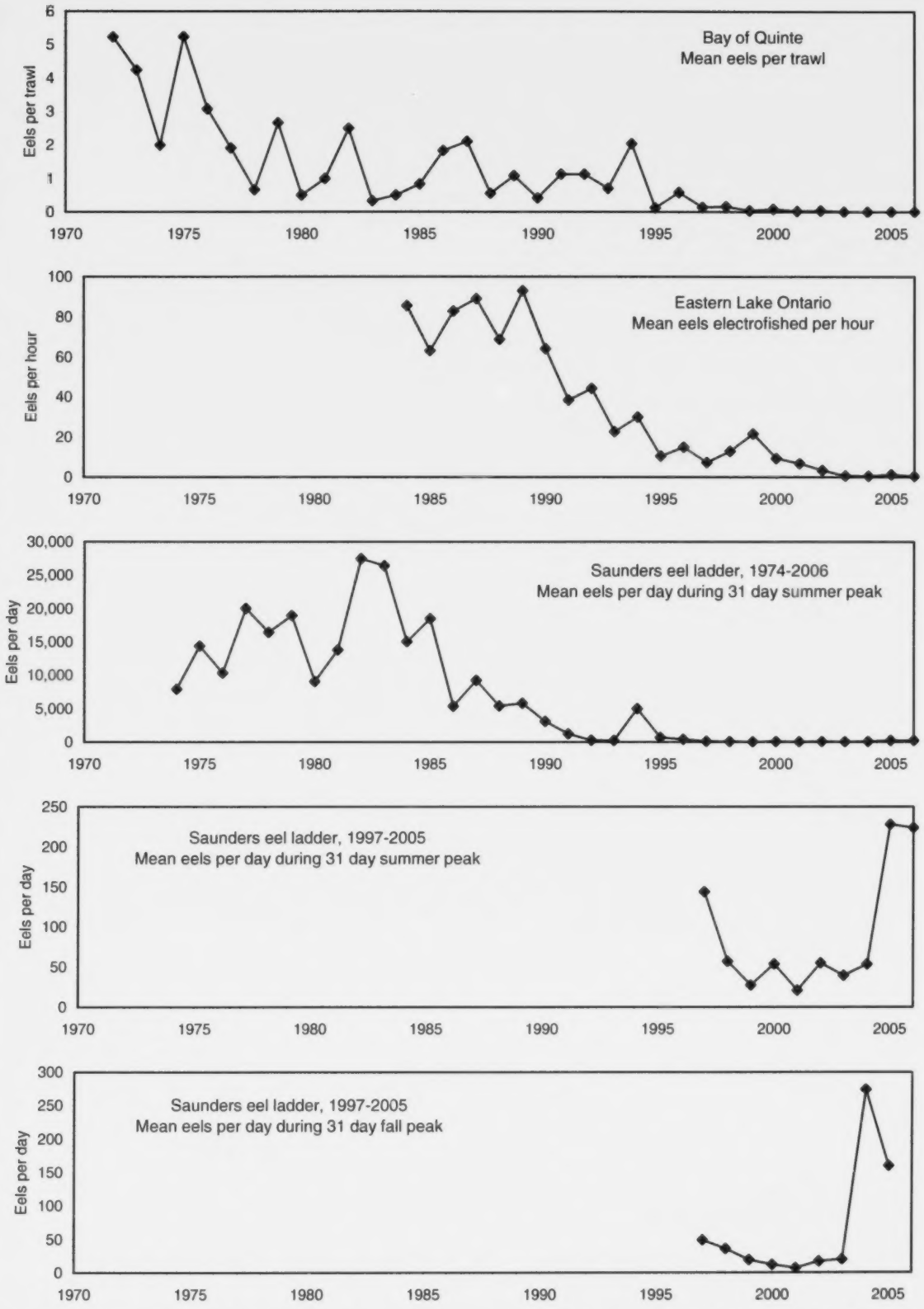


Fig. 7. American eel indices derived from Bay of Quinte trawling, Lake Ontario electrofishing, and the Saunders eel ladder on the Moses-Saunders dam.

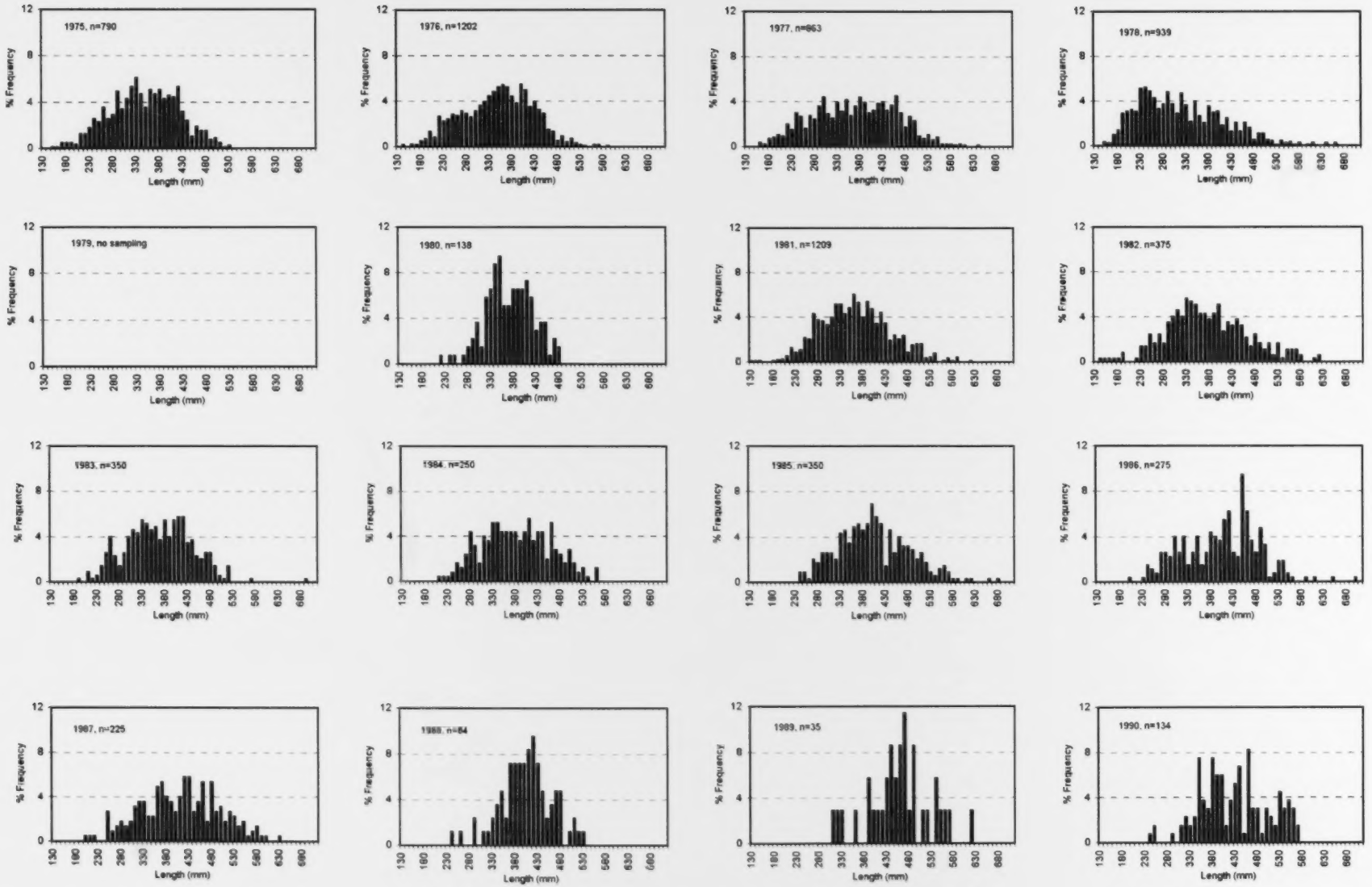


Fig. 8. Percent length frequency distributions of American eels ascending the Saunders ladder, 1975-2006.

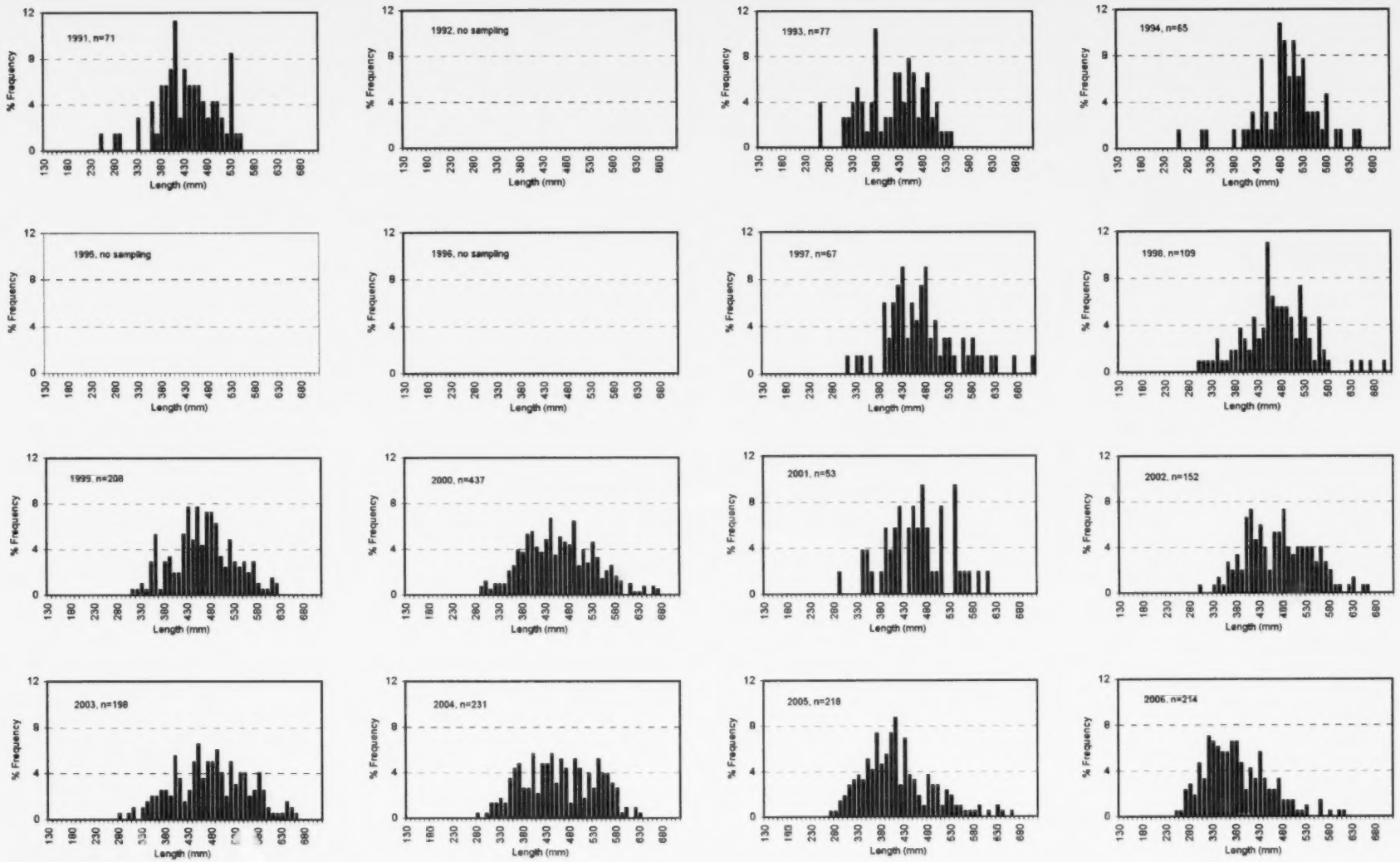


Fig. 8 (continued)

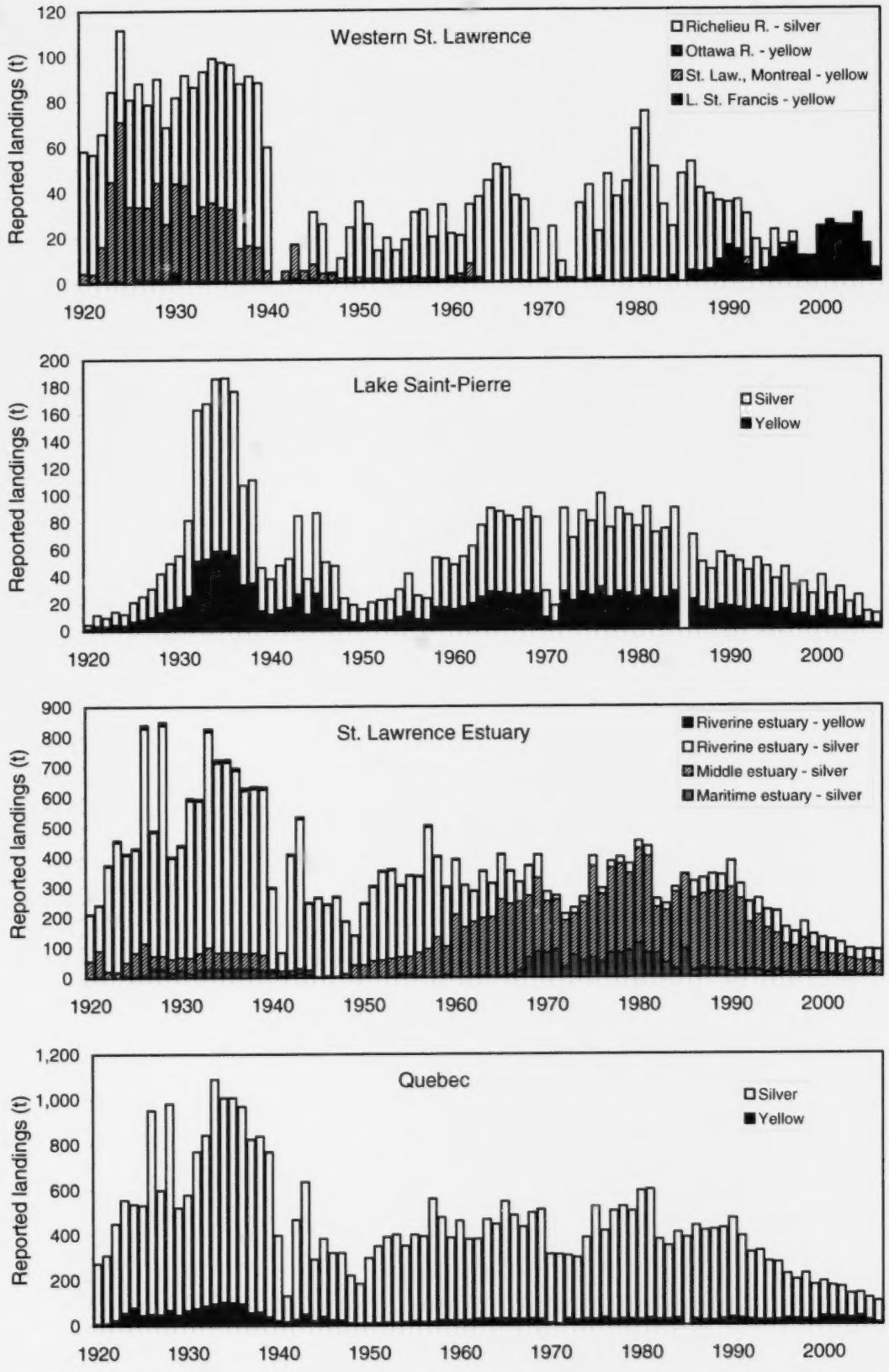
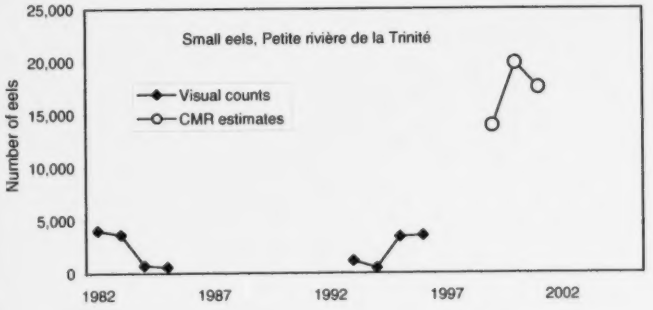
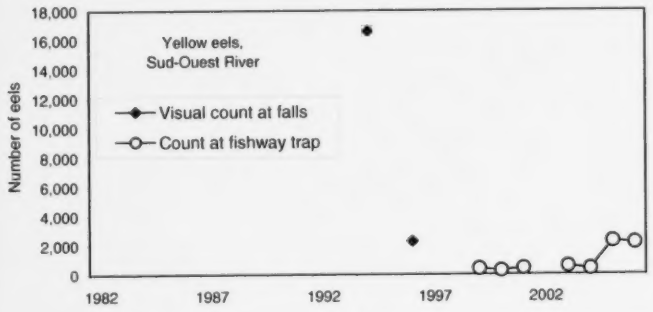
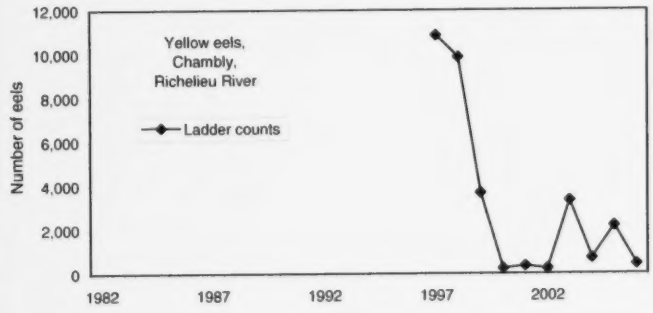
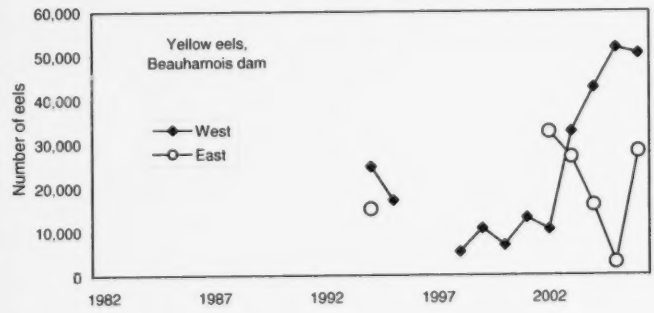


Fig. 9. Reported commercial landings (t) of American eels in Quebec, by year, stage, and region. Data for 2006 are preliminary.









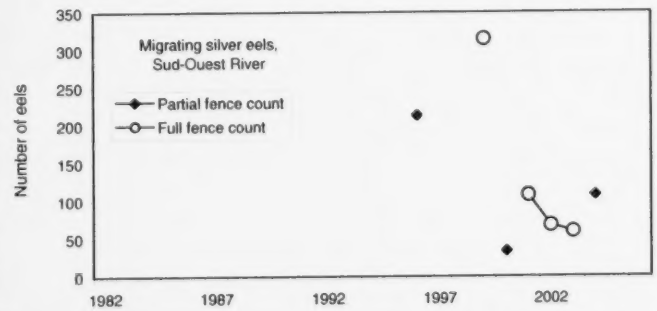


Fig. 10. Abundance indicators for small eels, yellow eels, and silver eels in Quebec. Data from Bernard and Desrochers 2006 (Chambly and Beauharnois) and from Caron et al. 2007 (all other series).

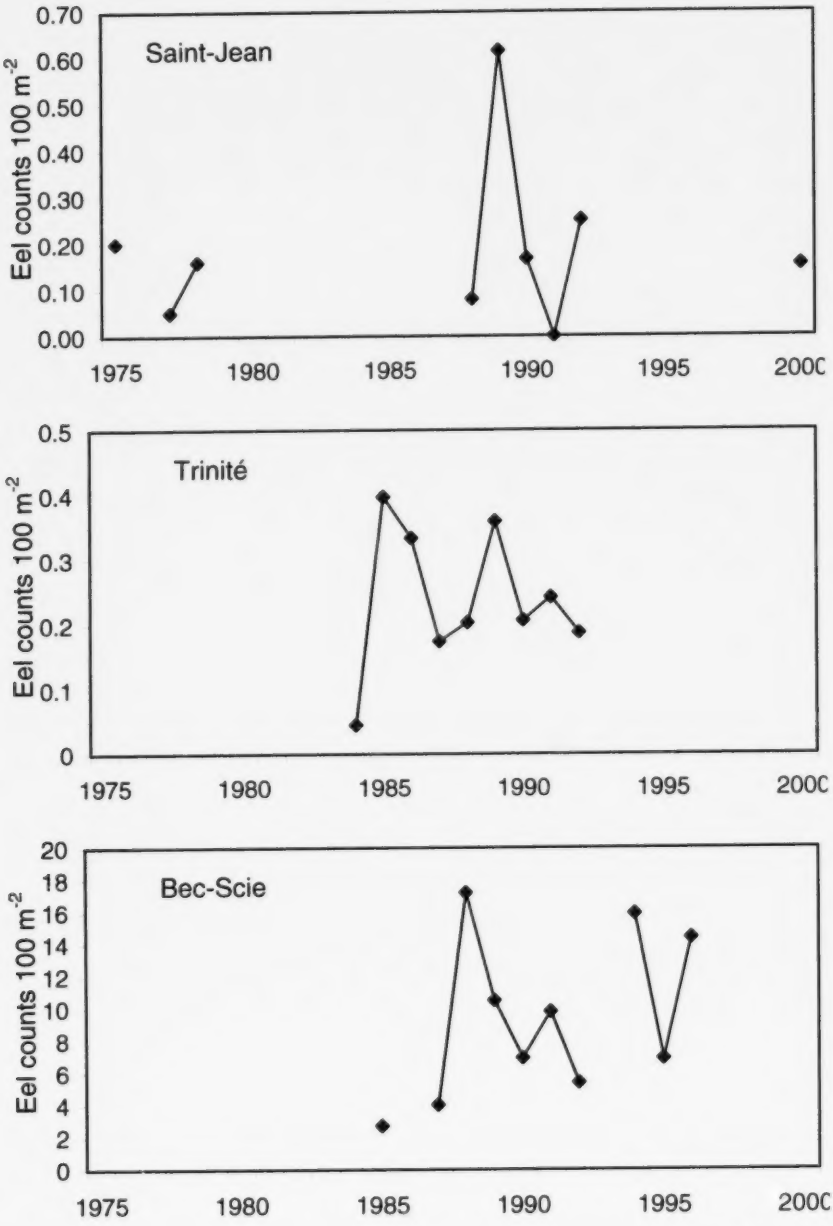


Fig. 11. Numbers of eels caught in 3 electrofishing sweeps per 100 m^2 in the Saint-Jean River, the Trinité River, and the Bec-scie River (including Ruisseau Castor).

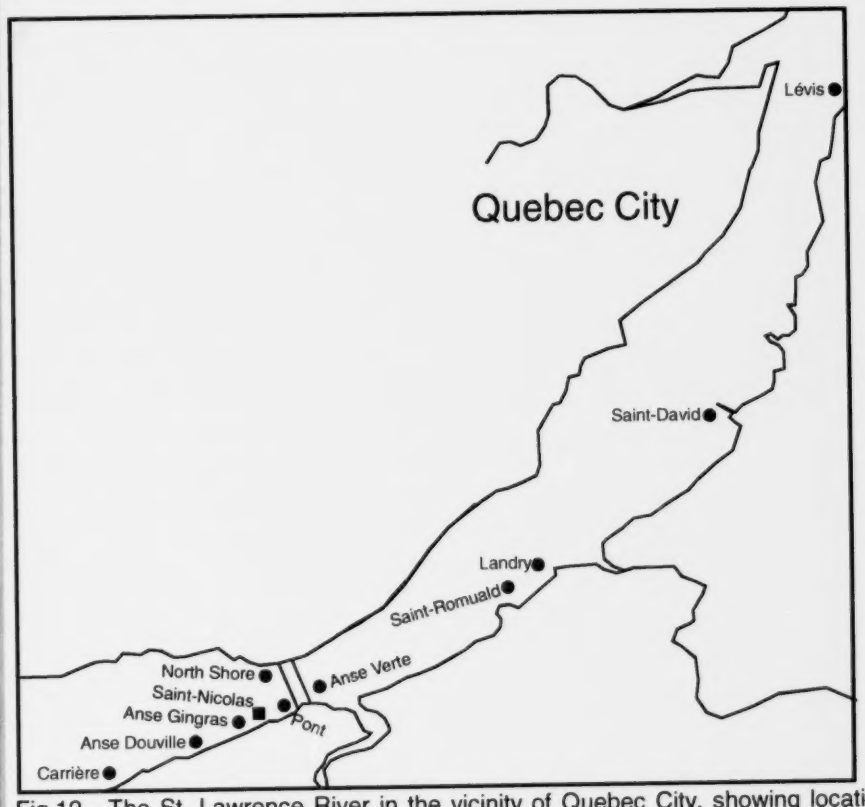
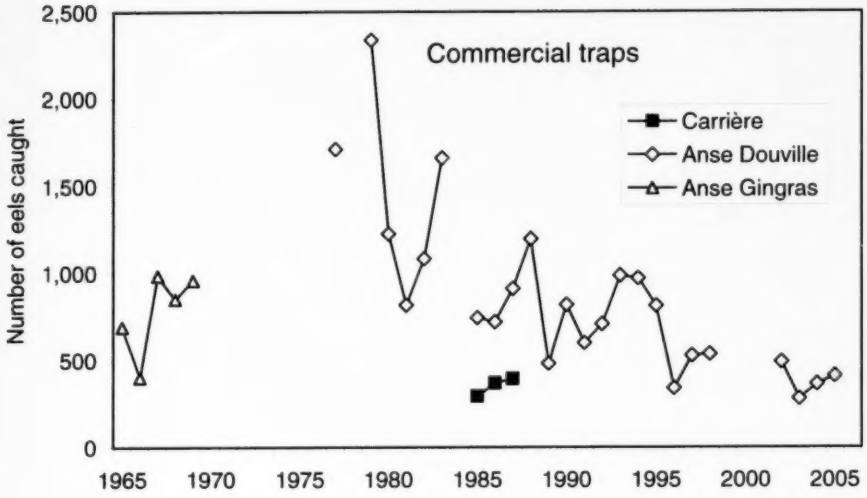
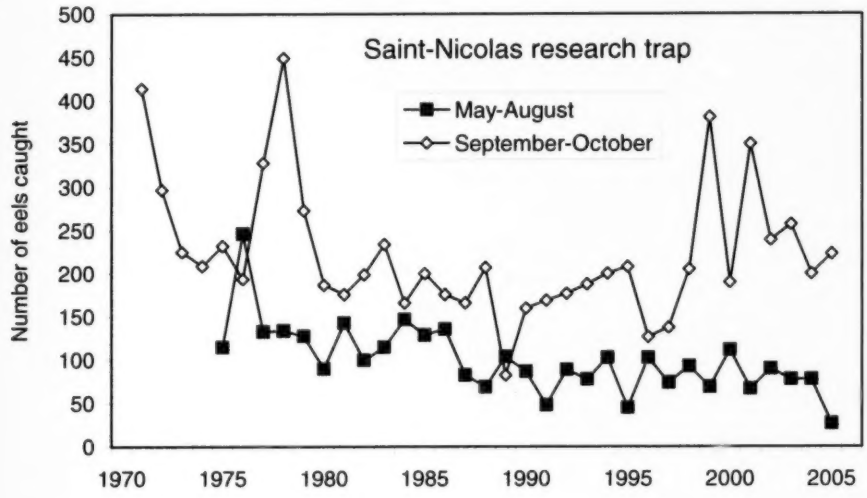


Fig.12. The St. Lawrence River in the vicinity of Quebec City, showing locations of commercial (circles) and research (square) eel trap-nets.





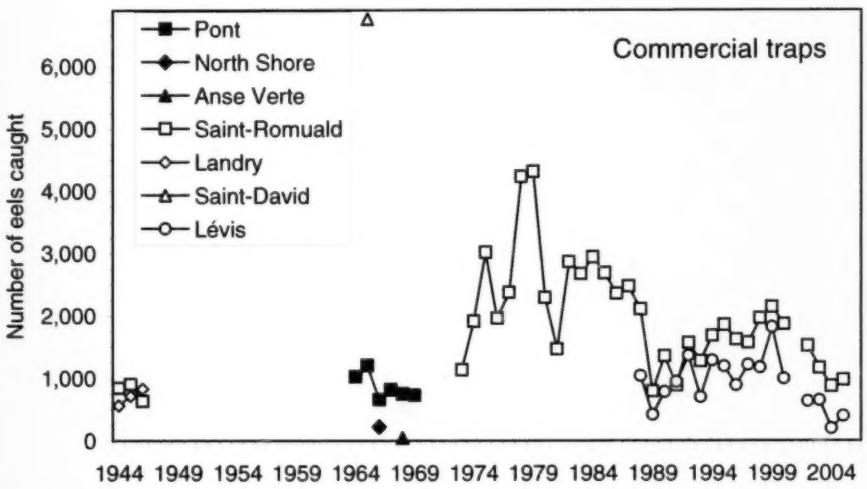


Fig. 13. Number of eels caught in commercial and research estuary trap-nets in the Quebec City area. Catches are for September to early November unless otherwise indicated. Data are from de Lafontaine et al. in press. The Saint-Romuald trap was set up differently in 1944-1946 than in 1973-2005; hence data for the two periods are not compatible.

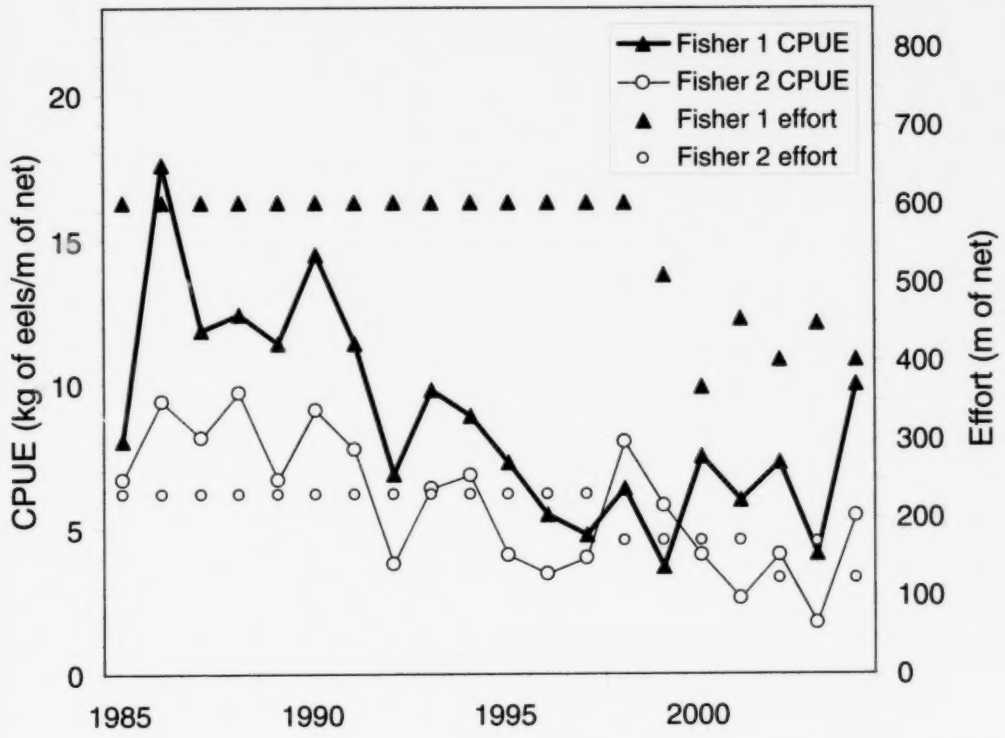


Fig. 14. Catch and catch per unit effort of two eel fishers at Rivière-Ouelle in the St. Lawrence estuary.

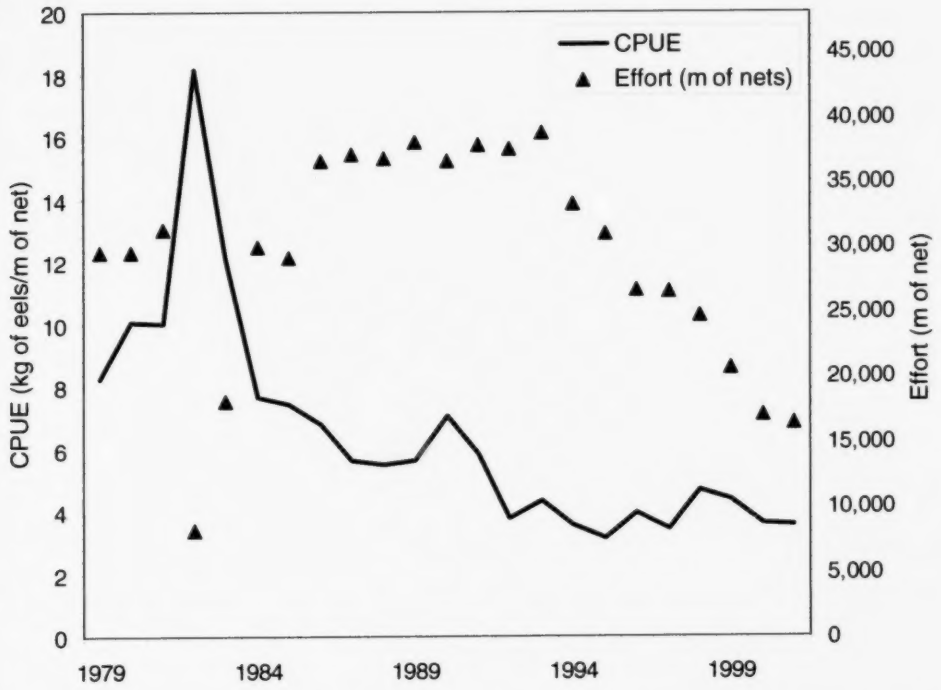


Fig. 15. Catch and catch per unit effort of eel fishers in Kamouraska County, Quebec. Data from Axelsen 1997 for 1979-1995 and from Verreault et al. 2003 for 1996-2001. Data from 1996-2001 are from index fishers, hence effort during that period does not reflect total effort of all fishers.

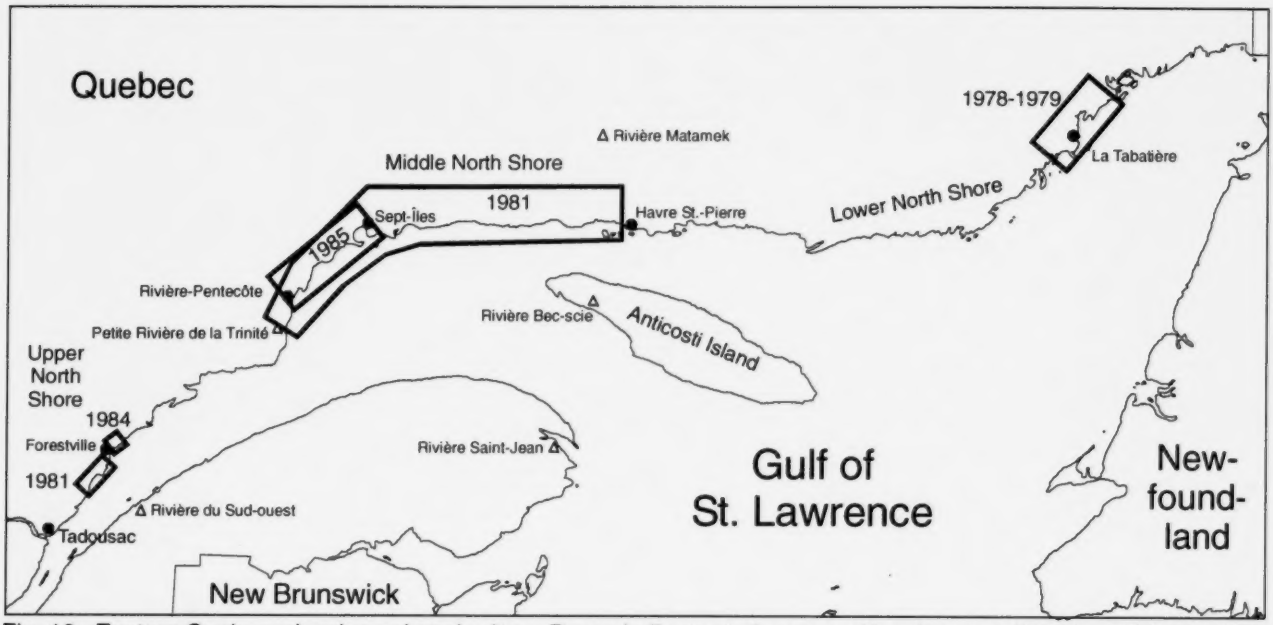


Fig. 16. Eastern Quebec, showing eel study sites. Boxes indicate study areas of Lemire et al. (1978) and Pilote (1989). Triangles indicate other study sites.

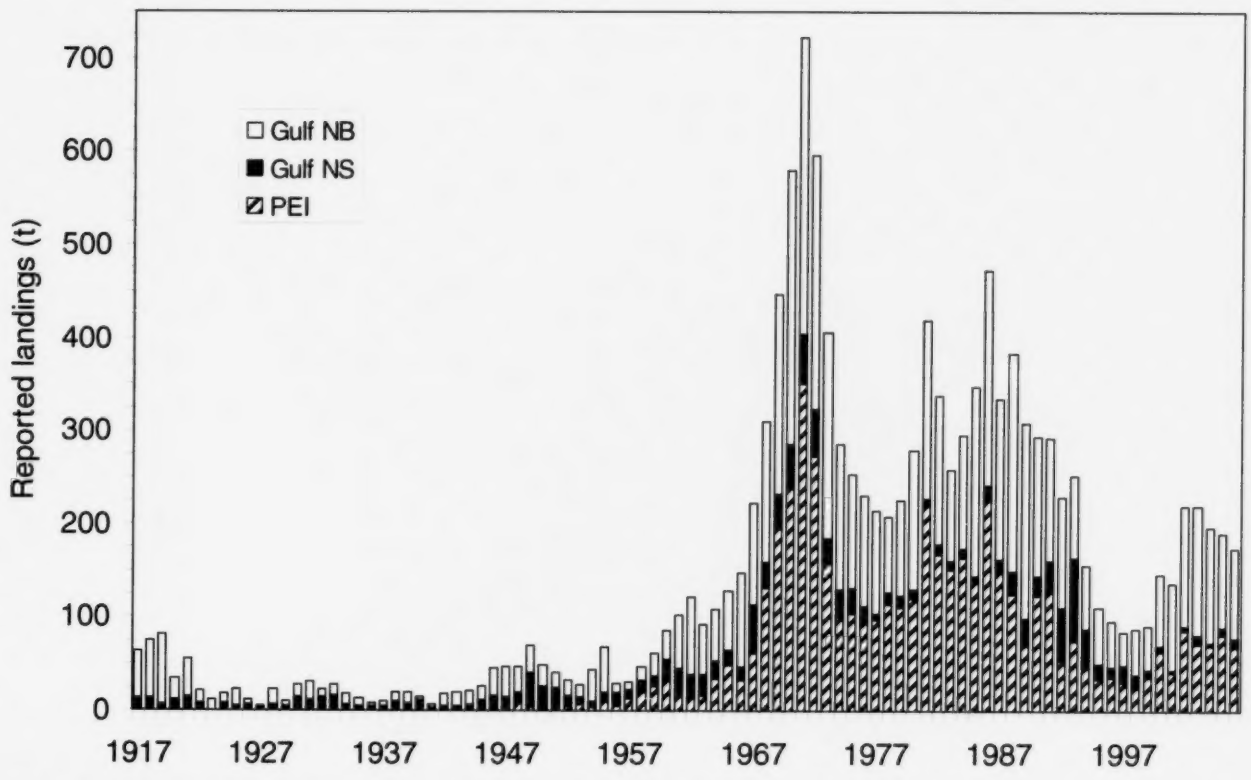


Fig. 17. Reported landings of American eels in the southern Gulf of St. Lawrence, 1917-2006, by province. Data for 2006 are preliminary.

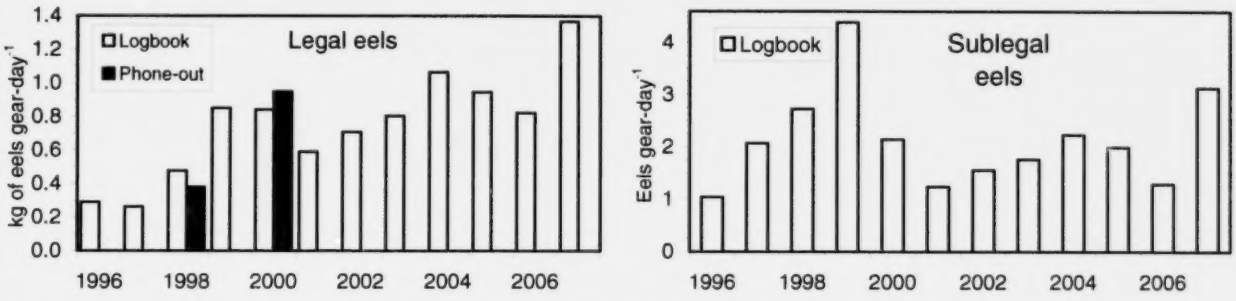


Fig. 18. Catch rates of legal and sublegal eels in fyke nets from logbook surveys (1996-2007) and from phone-out surveys (1998 and 2000) on Prince Edward Island. Catch rates are standardized to a minimum size of 53.0 cm.

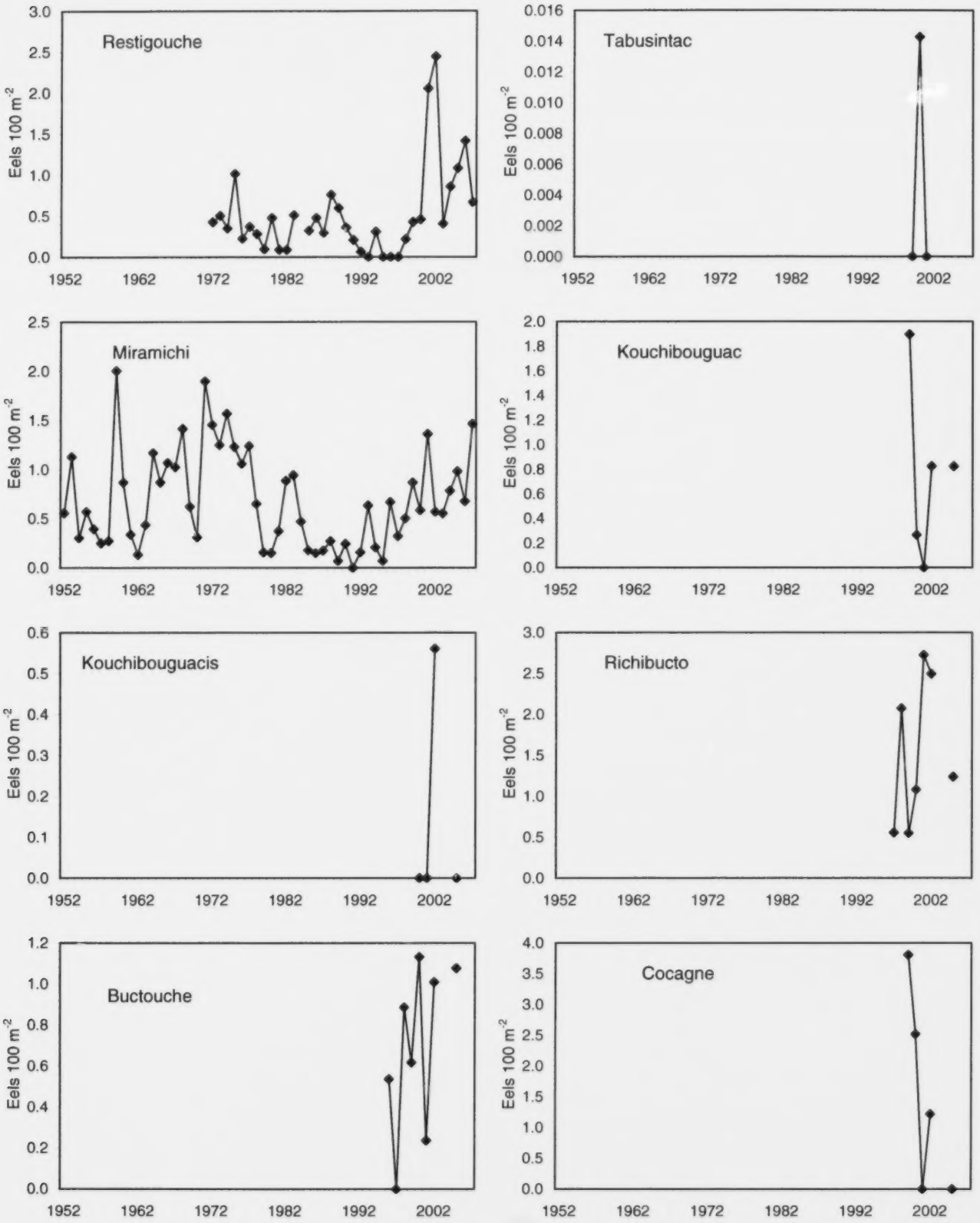


Fig. 19. Mean densities of American eels estimated from electrofishing surveys in Gulf New Brunswick rivers.

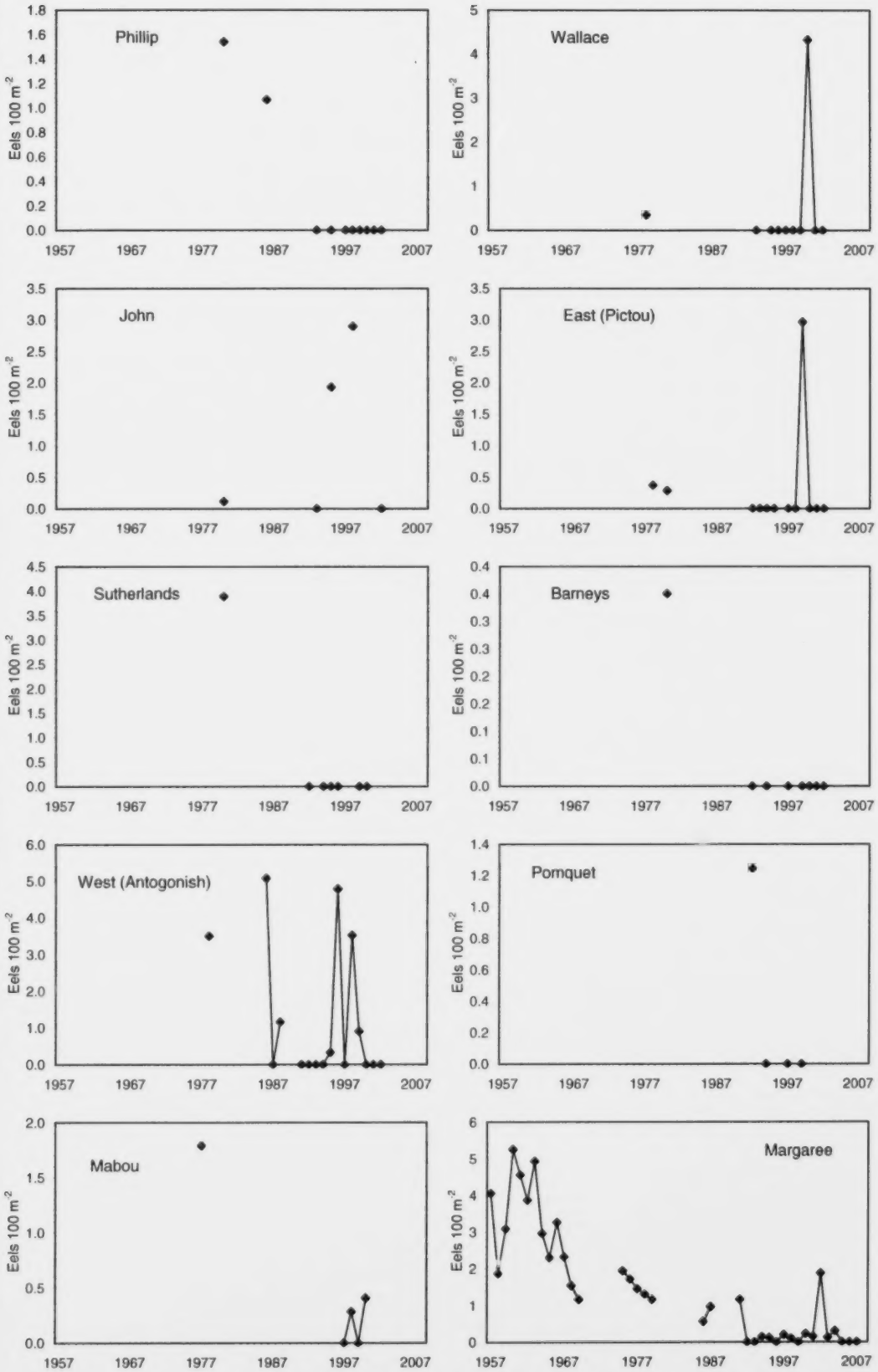


Fig. 20. Mean densities of American eels estimated from electrofishing surveys in Gulf Nova Scotia rivers.

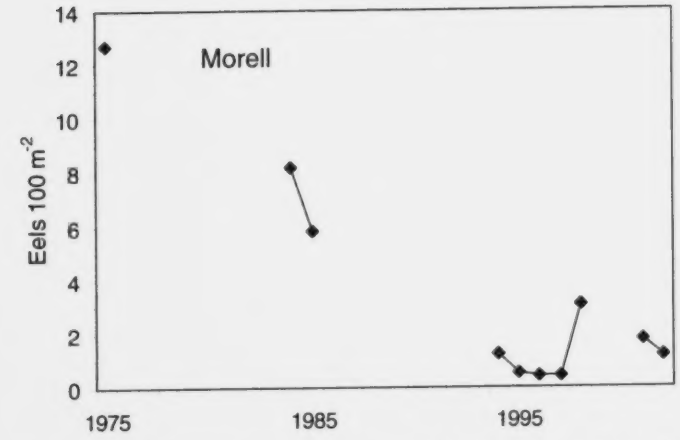


Fig. 21. Mean densities of American eels in the Morell River, PEI, estimated from electrofishing surveys.

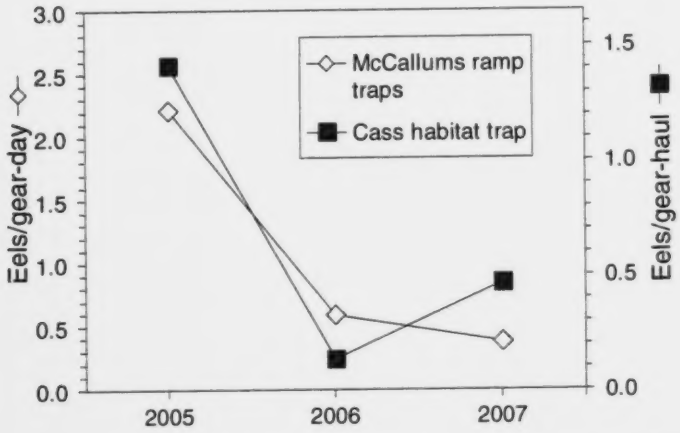


Fig. 22. Catch rates of eels <9.0 cm long at McCallums Pond and Cass Pond, PEI, in July-August 2005-2007.

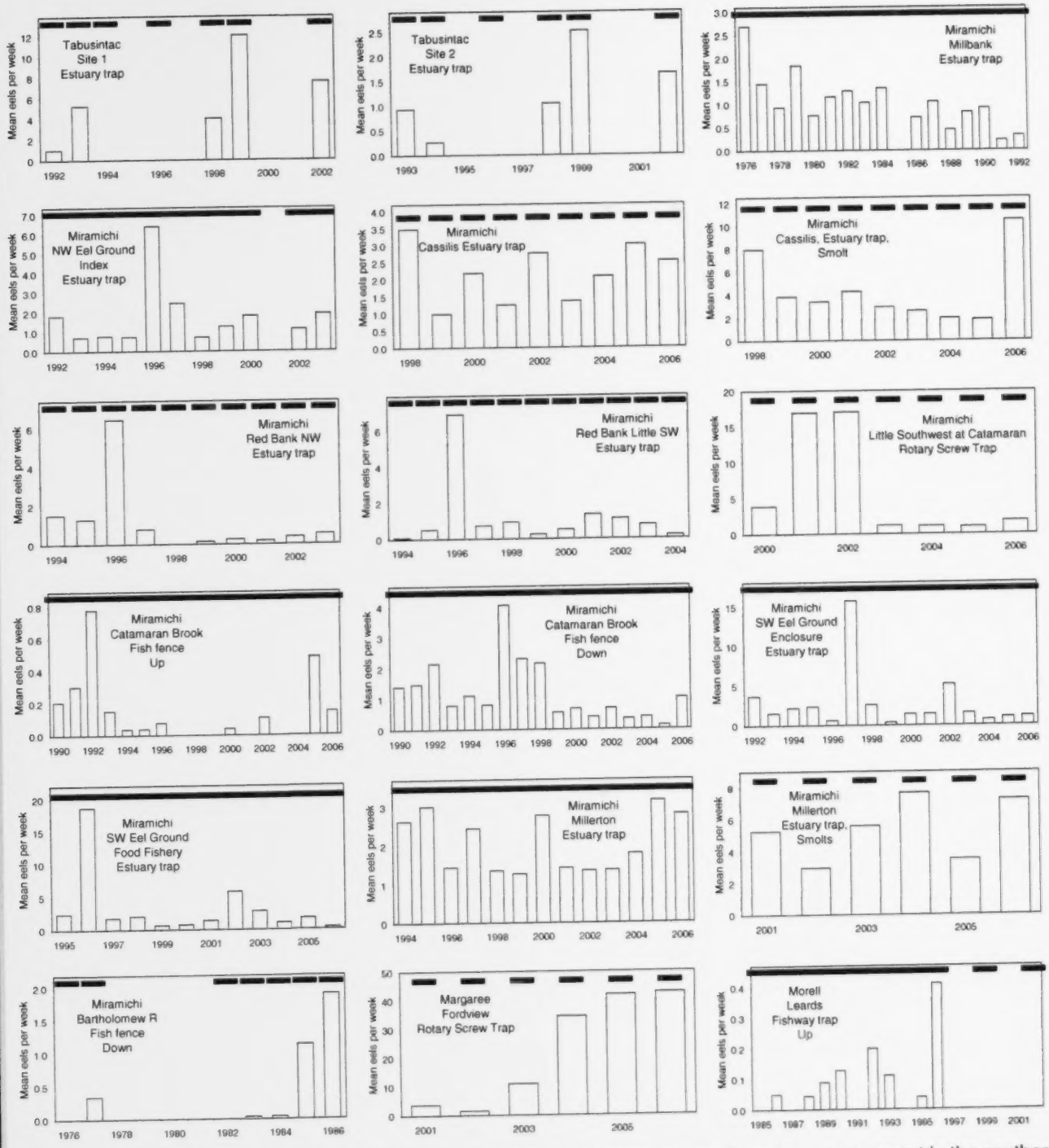

Tabusintac Site 1 Estuary trap
Tabusintac Site 2 Estuary trap
Miramichi Millbank Estuary trap
Miramichi NW Eel Ground Index Estuary trap
Miramichi Cassilis Estuary trap
Miramichi Cassilis, Estuary trap, Smolt
Miramichi Red Bank NW Estuary trap
Miramichi Red Bank Little SW Estuary trap
Miramichi Little Southwest at Catamaran Rotary Screw Trap
Miramichi Catamaran Brook Fish fence Up
Miramichi Catamaran Brook Fish fence Down
Miramichi SW Eel Ground Enclosure Estuary trap
Miramichi SW Eel Ground Food Fishery Estuary trap
Miramichi Millerton Estuary trap
Miramichi Millerton Estuary trap, Smolts
Miramichi Bartholomew R Fish fence Down
Margaree Fordview Rotary Screw Trap
Morell Leards Fishway trap Up
Mean eels per week

Fig. 23. Mean of weekly eel counts in fishing gears which intercept upstream and downstream movement in the southern Gulf of St. Lawrence, by year. Horizontal bars indicate the years for which data are available.

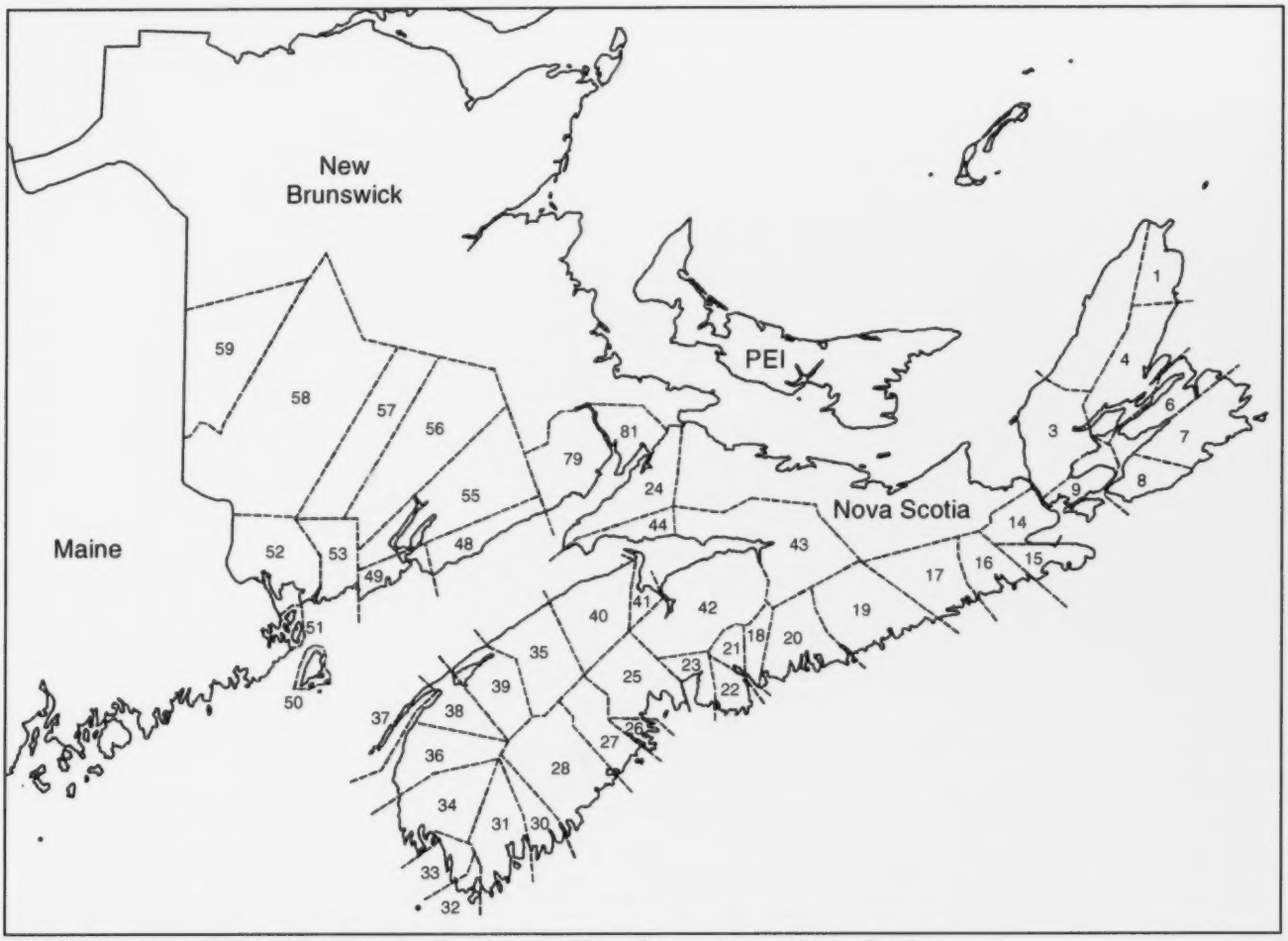


Fig. 24. Statistical Districts in the Scotia-Fundy area of New Brunswick and Nova Scotia.

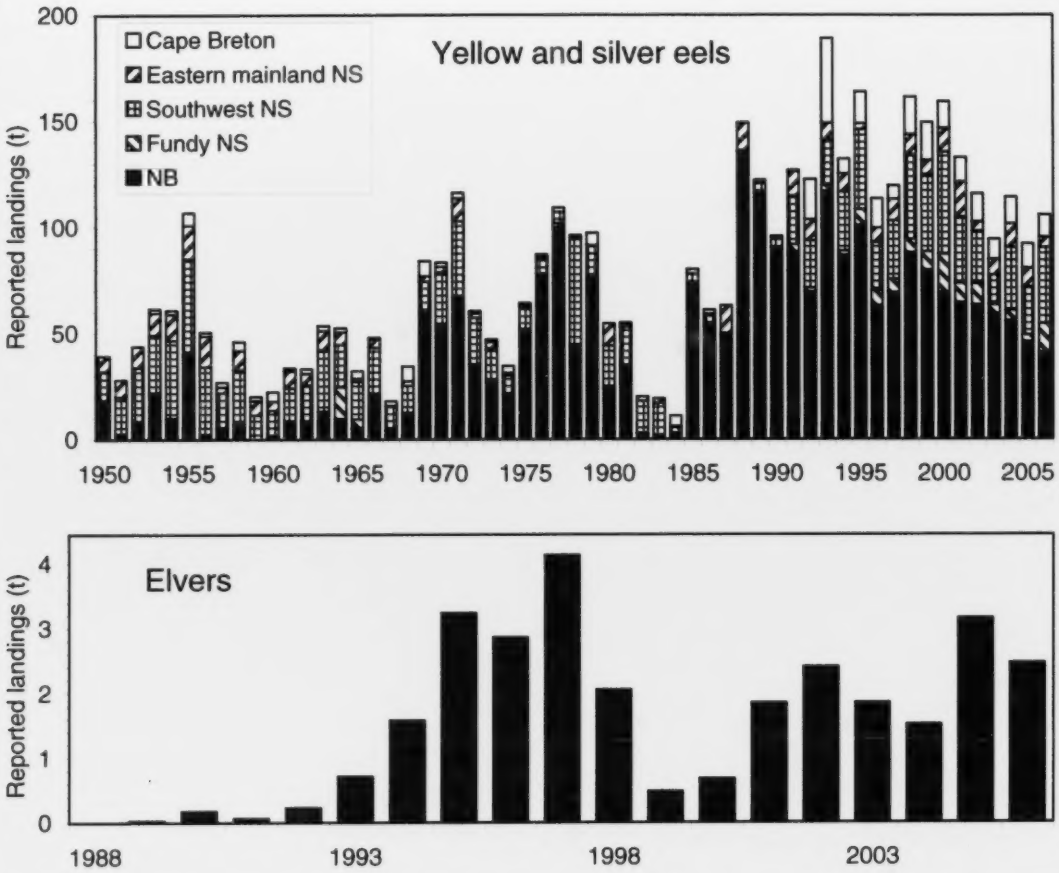


Fig. 25. Reported landings (t) of yellow and silver (upper panel) and elver (lower panel) American eels in the Scotia-Fundy area of New Brunswick and Nova Scotia.

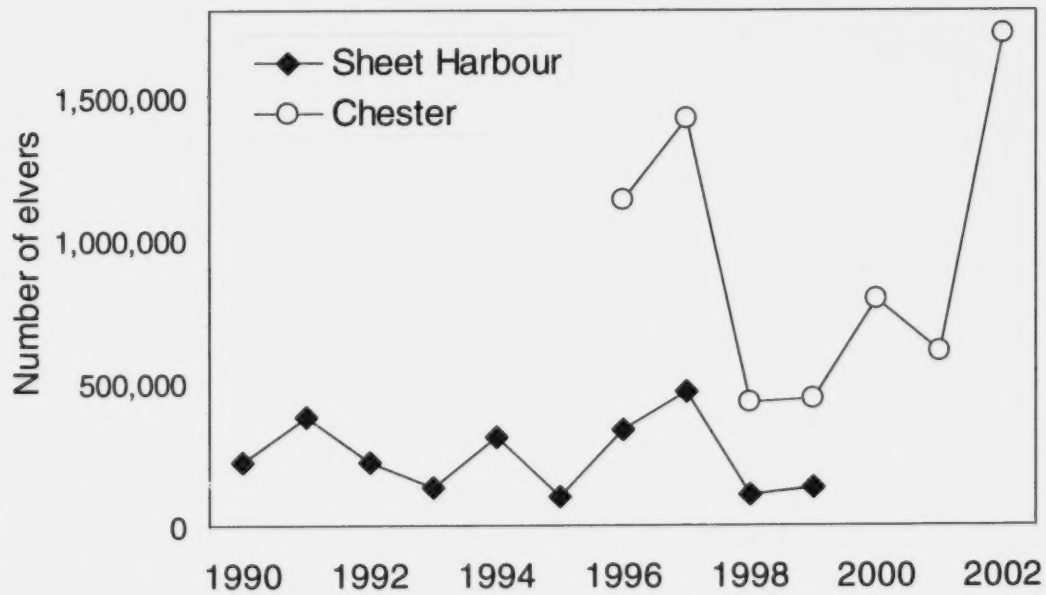


Fig. 26. Size of elver runs at East River-Sheet Harbour and East River-Chester Nova Scotia.

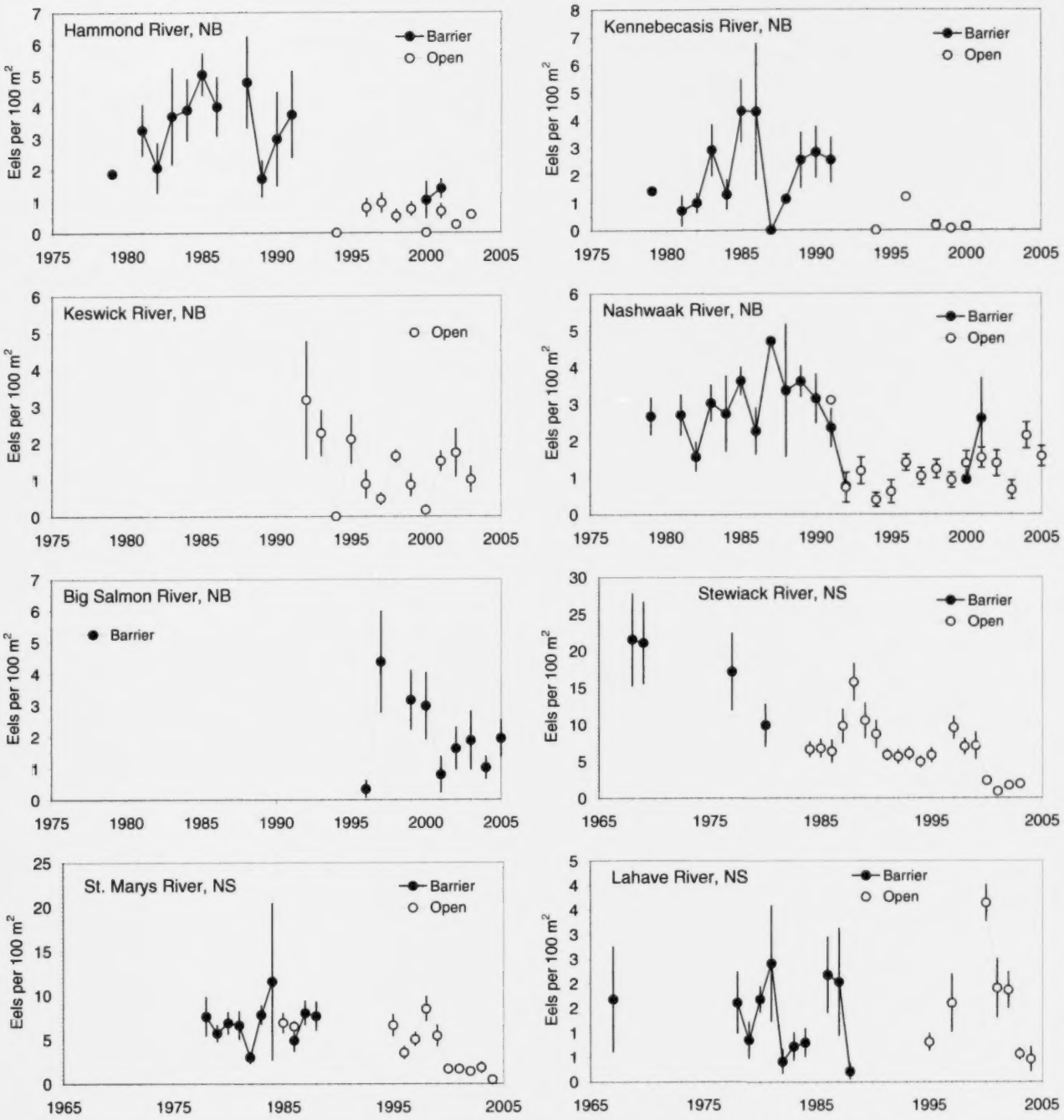


Fig. 27. Arithmetic annual mean (±standard error) of American eels per 100 m^2 in the first sweep of electrofishing surveys in barriered and open sites in New Brunswick and Nova Scotia rivers that flow into the Bay of Fundy and the Atlantic Ocean.

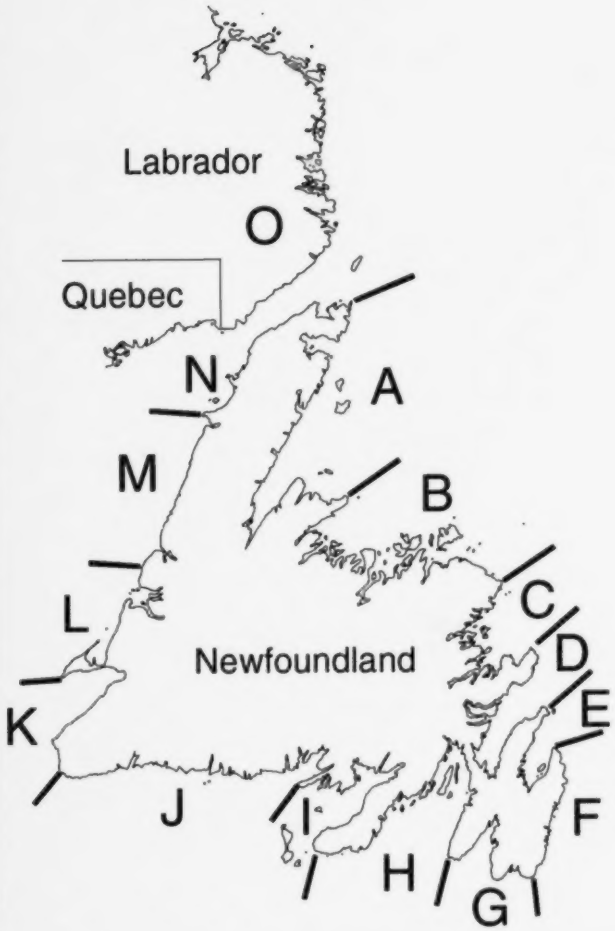


Fig. 28. Districts used to record eel landings in Newfoundland and Labrador.

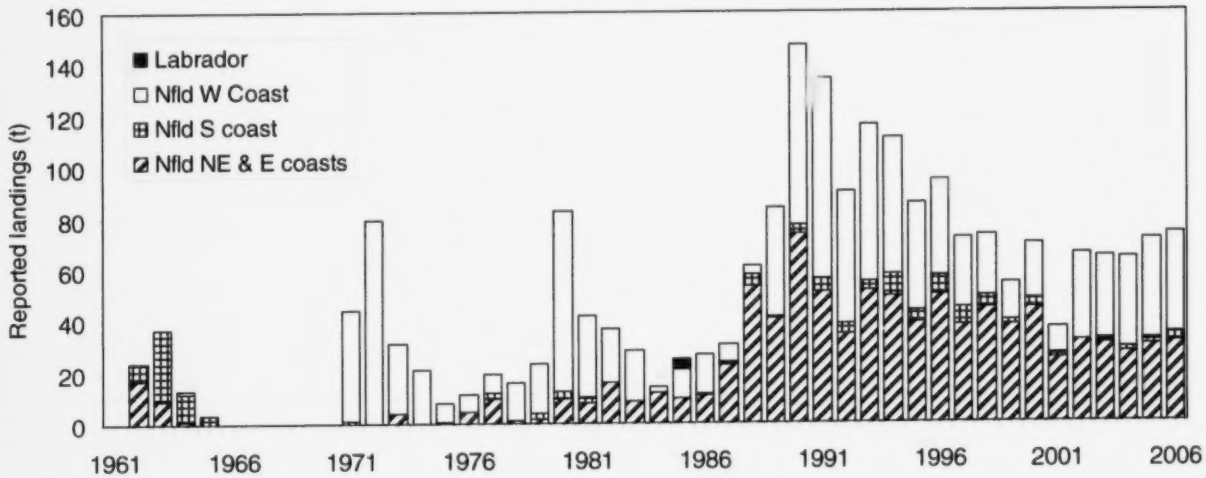


Fig. 29. Reported landings of American eels in Newfoundland and Labrador.

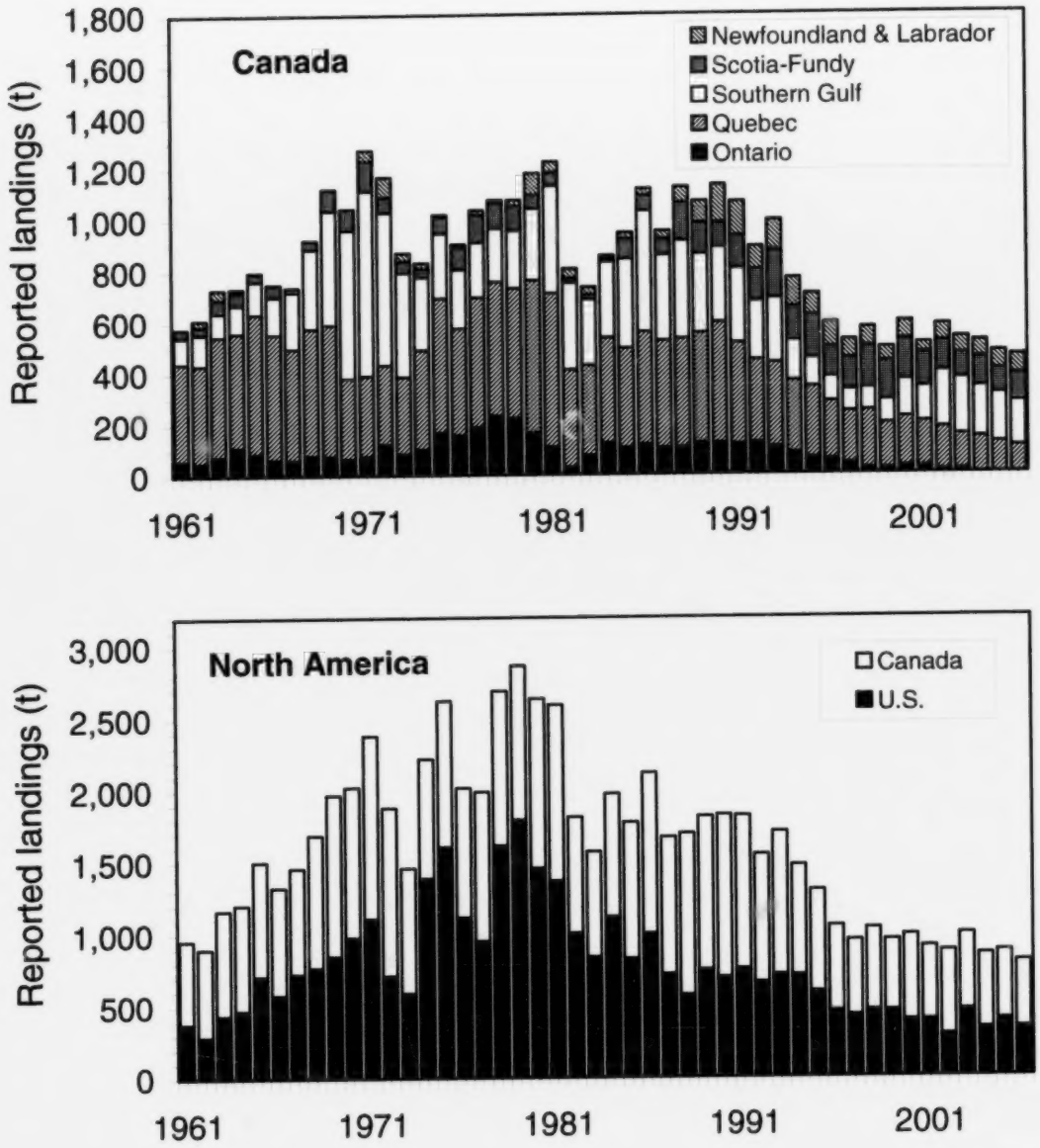


Fig. 30. Reported American eel landings in Canada (upper panel) and North America (lower panel).

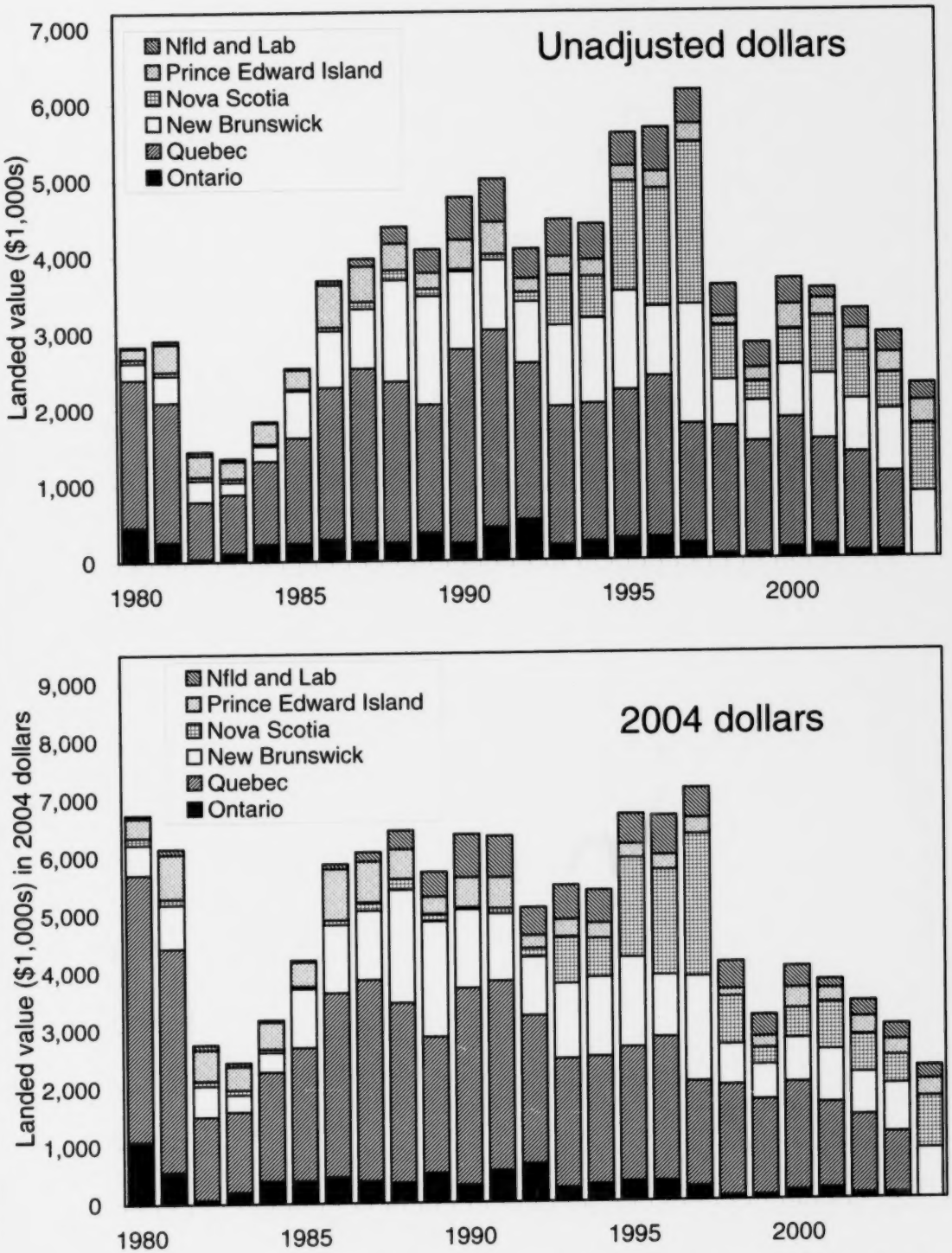


Fig. 31. Reported landed values of American eels in Canada, in unadjusted dollars (upper panel) and inflation-adjusted 2004 dollars (lower panel). Quebec data for 2004 are unavailable.

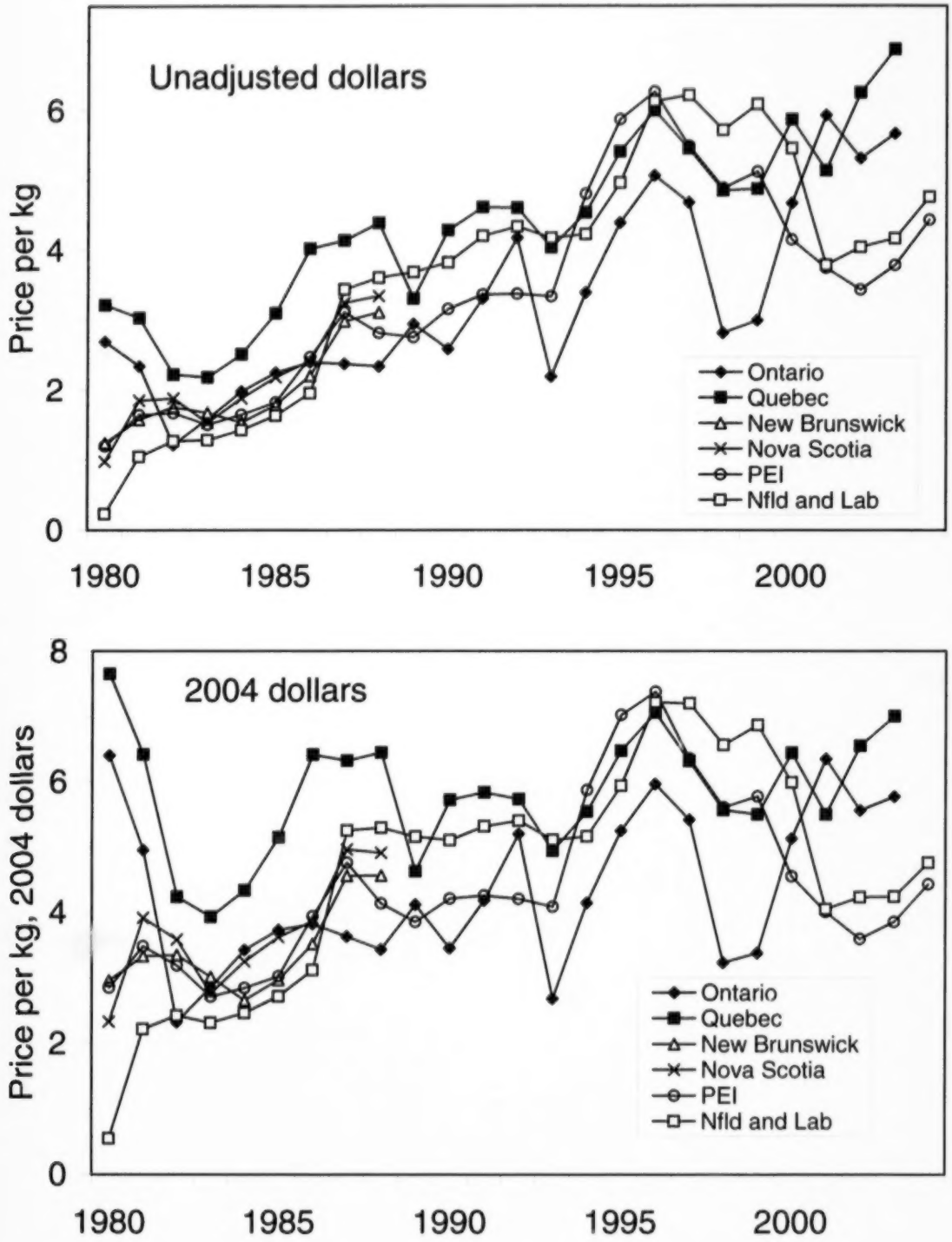


Fig. 32. Mean price per kg paid to fishers for American eels in Canada, in unadjusted dollars (upper panel) and in inflation-adjusted 2004 dollars (lower panel). Excludes data from Nova Scotia and New Brunswick in 1989-2004, when the elver fishery operated.

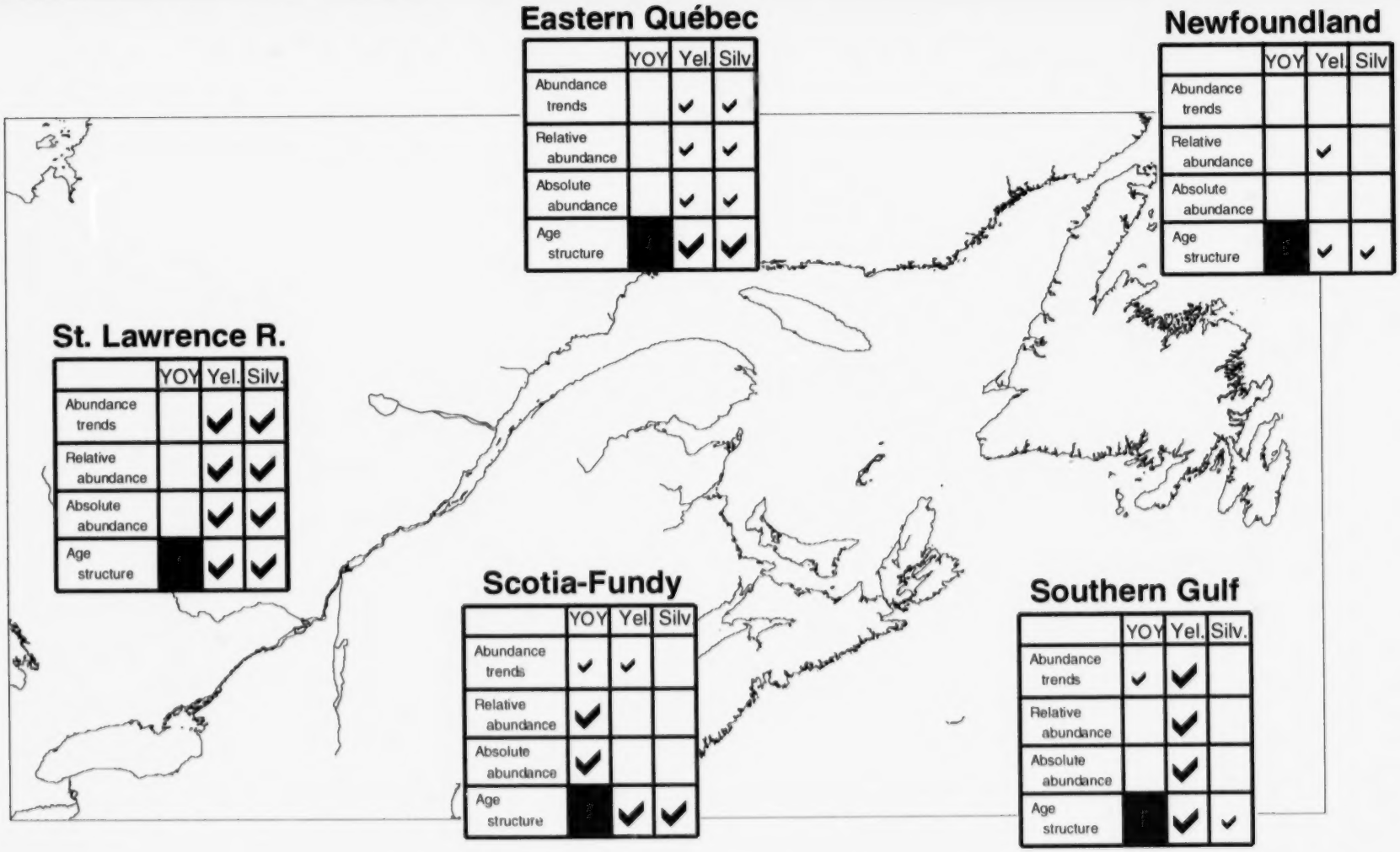


Fig. 33. Schematic summary of data availability for YOY (young of the year), yellow, and silver American eels in Canada. Large checks indicate long-term and ongoing data series. Small checks indicate data sets which are short-term or which are not ongoing.